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Network Analysis Methods for Mental Health Service System Research:

A Comparison of Two Community Support Systems

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MENTAL HEALTH SERVICE SYSTEM REPORTS

Network Analysis Methods for Mental Health Service System Research:

A Comparison of Two Community Support Systems

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FOREWORD

Increased attention has been directed over the past two decades to the systems characteristics of mental health service programs. As evident in the Community Mental Health Centers Program, the Community Support Program, and State Mental Health Planning, such characteristics include continuity of care, comprehensiveness of services, participatory planning, interagency cooperation, and services integration.

Although clear in principle, these system characteristics are difficult to study given the size and complexity of the mental health service system. Much of the difficulty has stemmed from the lack of methodologies useful in measuring and analyzing the many facets and levels of interaction required among components. Despite the complexity of the task, however, understanding these interactions as they occur in real-life settings is fundamental to the development and evaluation of policy, to program administration, and to clinical practice.

The National Institute of Mental Health, through its Division of Biometry and Epidemiology, Service System Research Program, has assigned high priority to developing needed research methodology. As a first step toward this end, NIMH supported Morrissey and colleagues to review existing literature on interorganizational relations and to produce a sourcebook of concepts and measures accompanied by a methodological critique. Published in 1982,[1] this review made clear the amount of work required to raise existing measures to a high level of scientific acceptability.

The present report represents another important step toward the improvement of empirical research on service systems. Morrissey, Tausig, and Lindsey now have applied several of the most promising measures of interorganizational relations and methods of analyzing network data to Community Support Program projects in two communities. In this report, they present a model for comparative research that others can use or modify as needed for particular systems and/or research questions. We commend the authors for the clarity with which they describe the rationale and results of this pioneering comparative study. We are pleased to publish the report with the anticipation that others will have opportunity to adapt the model to other issues and uses.

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National Institute of Mental Health

[1] Morrissey, J.P.; Hall, R.H.; and Lindsey, M.L. Interorganizational Relations: A Sourcebook of Measures for Mental Health Programs. Series BN No. 2, Rockville, MD: National Institute of Mental Health, 1982.

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PREFACE

Over the past several years, interest has been increasing in research on mental health service systems. In part, this interest derives from a growing recognition of society-wide resource scarcity and the need to deal with human problems within the constraints of existing program allocations. It also represents a natural evolution in program evaluation, which has expanded its focus from individual client outcomes and the cost-effectiveness of social interventions to the influence of the organizational and community context on the delivery of human services. To a large extent, however, there has been a technological lag between the desire to see human service delivery problems in their larger systemic context and the availability of research methods for conducting such analyses.

This volume presents an effort to marry two research traditions – interorganizational analysis and network analysis – to provide a method for analyzing systems of mental health and other human services. The technique was applied in a comparative study of two of the original Community Support Program (CSP) local demonstration projects for the chronically mentally ill sponsored by the National Institute of Mental Health in Syracuse and Schenectady, New York. This report illustrates the ways in which the theoretical and methodological tools in these two fields can be applied to the practical problems of CSP design and evaluation at the local community level. The utility of these tools extends well beyond this particular application, however. The concepts and methods employed are generic; they can be employed in any interagency arena to document the patterns of resource flow, interorganizational structure and role differentations, and levels of system development. Thus, we hope that our readers will also learn something about the potential of these techniques for more broadly conceived service system research.

A number of persons provided assistance to us over the past several years at one or another stage of the collection, analysis, and writeup of the data presented in this volume. Ernest Townsend and John Sheets served as Program Directors of the two CSP demonstration projects. Townsend allowed us to use the Schenectady data set that he had assembled for other purposes. Sheets helped us identify other agencies in the Syracuse CSS network, gain access to such agencies, and review both the initial study protocols and a draft of the final report. Allen Thornton, who succeeded Townsend as Director of the Schenectady CSP project, was helpful during the original coding and interpretation of the Schenectady data.

Paul Castellani, who served as a staff member of the New York State Office of Mental Health's Special Projects Research Unit aided in the design and implementation of the research plan for the Syracuse component of the study and in conducting the

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agency key-informant interviews. Nancy Riffer and Patricia Pirro also participated in the interviewing and data collection on the Syracuse segment of the research.

Susan Steindorf, who served as Director of the New York State Office of Mental Health's CSP Demonstration Project, was helpful in documenting the historical context of CSS planning in New York as well as the relevance of systems assessments to CSP evaluation. At the national level, similar guidance was provided by Judith Turner and Neal Brown of the Community Support and Rehabilitation Branch, and by Jacqueline Rosenberg of the Office of the Director, Office of State and Community Liaison, NIMH.

Andrew Van de Ven, Professor of Management at the University of Minnesota, allowed us to use and adapt the data collection instruments he had developed for interorganizational research. Ronald Burt, Professor of Sociology at Columbia University, also let us use the special network analysis software package he had developed. Our use and interpretation of multidimensional scaling techniques was enhanced by Richard Alba, Professor of Sociology at the State University of New York at Albany. Helpful comments and suggestions on an early draft of this report were provided by Richard Hall, Professor of Sociology at the State University of New York at Albany, and Howard Goldman, Associate Director for Financing at NIMH.

The final version of this report benefitted enormously from a careful and thorough reading by Charles Windle, Service Systems and Economics Research Branch, Division of Biometry and Epidemiology, NIMH. He identified a number of gaps and inconsistencies in our thinking and presentation and suggested several revisions that significantly enhanced the clarity and coherence of the final text.

Joseph P. Morrissey

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CONTENTS

Page

Foreword iii

Preface iv

1. **Assessing Mental Health Service Systems: An Interorganizational Network Perspective** 1

   Community Support Systems: Concepts and Goals 3
   Scope of the Research 6
   Overview of the Report 8
   A Note on Terminology 9

2. **Theoretical Framework for Analyzing the Emergence and Maintenance of Community Support Systems** 12

   Theoretical Approaches and Assumptions 13
   Situational Factors 14
   Structural Factors 16
      Network Intensity and Complexity 16
      Network Formalization and Centralization 18
   Relationships Between Situational and Structural Factors 19
      Emergence and Structure of Network Relationships 19
      Coordination of Network Relationships 20
   The Network as a System 22
   Perceived Effectiveness of Interagency Relations 24
   Overview of Research Framework 25
   Summary 28

3. **Field Sites and Research Methods** 29

   Field Sites 29
      Schenectady 29
      Syracuse 31
   Bounding the CSS Networks 33
   Data Collection 35

BEST COPY AVAILABLE

Page

Data Analysis Procedures 38
Data Preparation and Analysis 39
Structural Equivalence 40
Relation Level Data Set 43
Summary 44

4. **Situational Dimensions of the CSS Network** 45

Intercommunity Comparisons of Situational Factors 45
Resource Dependence 47
Domain Similarity 47
Domain Consensus 48
Awareness 48
Size 49
Implications for Network Intensity 49
Summary 50

5. **Structure and Coordination in the CSS Networks** 51

Network Intensity and Complexity 51
Intensity 51
Complexity 54
Characteristics of Network Clusters 59
Network Formalization and Centralization 63
Agreement Formalization 63
Centralization 65
The Level of Managed Coordination 69
Summary 70

6. **The CSS Network as a System** 71

Intercluster Relationships 71
Systemic Role Differentiation and Hierarchy 81
Summary 85

7. **Perceived Effectiveness and System Development Problems** 87

Perceived Effectiveness of Network Relationships 87
System Development Problems 93
Summary 95

BEST COPY AVAILABLE

Page

8. **Network Approaches to Mental Health Service System Research: Retrospect and Prospect** 97

Summary of Key Findings 97
Theoretical Implications 99
Situational Factors 99
The Pattern of Resource Flows 102
Levels of Coordination 102
Methodological Implications 104
Sampling 104
Measurement 105
Analysis 105
Limitations of the Network Approach 106
Implications for CSS Development Strategies 107
Directions for Further Research 109

Appendixes

1. Data Collection Instruments 113
2. Technical Details of Data Analysis Techniques 122

References 127

BEST COPY AVAILABLE

LIST OF EXHIBITS

Exhibit		Page
2-1	Assumptions Regarding Organizational Attitudes and Behaviors in an Interorganizational Context	13
2-2	Situational Factors Affecting Emergence and Maintenance of Interagency Networks	15
2-3	Structural Dimensions of Interorganizational Networks	17
2-4	Hypotheses on Emergence and Structure of Interagency Networks	19
2-5	Schematic Representation of Research Framework	26
3-1	Schenectady CSP Agencies	31
3-2	Syracuse CSP Agencies	33
3-3	Syracuse CSS Agency Network	36
3-4	Schenectady CSS Agency Network	37
5-1	Structurally Equivalent Groups and Residual Agencies in the Syracuse and Schenectady CSS Networks	55
6-1	Specialized Regions in the CSS Networks	77

LIST OF TABLES

Table		
4-1	A Comparison of Situational Factors in Syracuse and Schenectady	46
5-1	Frequency of Interorganizational Relations by Type of Linkage in Syracuse and Schenectady CSS Networks	52
5-2	Primary Reason for Interorganizational Relationships by Structurally Equivalent Groups in the Syracuse and Schenectady CSS Networks	61
5-3	The Extent of Agreement Formalization, by Cluster, in the Syracuse and Schenectady CSS Networks	64

BEST COPY AVAILABLE

Table — Page

5-4 The Extent of Committee Formalization, by Cluster, in the Syracuse and Schenectady CSS Networks 66

5-5 The Extent Committee Decisions Are Binding, by Cluster, in the Syracuse and Schenectady CSS Networks 68

6-1 Syracuse Cluster Level Image Matrix 73

6-2 Schenectady Cluster Level Image Matrix 74

7-1 Levels of Perceived Effectiveness in the Institutional and Community Regions of the Syracuse and Schenectady CSS Networks 90

7-2 Levels of Perceived Effectiveness Within and Outside the Institutional and Community Regions of the Syracuse and Schenectady CSS Networks 92

7-3 System Development Problems in the Syracuse and Schenectady CSS Networks 94

A-1 Density Matrix for Structurally Equivalent Clusters in Syracuse 125

A-2 Density Matrix for Structurally Equivalent Clusters in Schenectady 126

LIST OF FIGURES

Figure

6-1 MDS Representations of Intercluster Relationships in CSS Networks 76

6-2 Digraph Representation of Intercluster Linkages in Syracuse 79

6-3 Digraph Representation of Intercluster Linkages in Schenectady 79

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ASSESSING MENTAL HEALTH SERVICE SYSTEMS: AN INTERORGANIZATIONAL NETWORK PERSPECTIVE

The assessment of mental health service systems transcends the traditional emphases of evaluation research. Most evaluation studies focus on client- and program-level variables. The goals are to ascertain the impact of services on client functioning and to identify which aspects of a treatment program contribute to client outcomes in an efficient and effective way. When attention shifts from clients and individual programs to systems of services, a new level of analysis is introduced that requires assessments of transaction processes among a variety of service organizations and their broader social environment. The focus at the system level is on the extent and manner in which diverse and otherwise autonomous organizations act in concert to achieve mutual objectives, and how these interagency arrangements are affected by factors operating in the community, State, and national environment.

Within the past 20 years, interorganizational analysis has emerged as a field of research occupying an interstitial position between studies of individual organizations and of whole communities. Its focus is on the origins, patterns, and consequences of interaction among complex organizations (Levine and White 1961; Warren 1967; Litwak and Rothman 1970; Benson 1975; Van de Ven 1976). Interorganizational analysis views as problematic what in many systems formulations is assumed as axiomatic, namely, the tight coupling or high degree of interdependence among community organizations and actors. In other words, systemness is conceived of as a variable, and its attribution in any particular domain is a matter to be empirically demonstrated rather than assumed.

Interorganizational analysis has been directed primarily to the coordination and integration of human services. The stimulus for this work has been the variety of governmental efforts during the past few decades to overcome the patchwork of fragmented and discontinuous services in the health and welfare field. Sauber (1977, p. 130-31) has characterized this situation in the following terms:

Gaps in intersystem relationships among health and medical practice, criminal justice, welfare and rehabilitation, education and mental health organizations have long been considered as a major problem and deterrent to effective service delivery. As a result, there is a strong appeal in shifting the focus from the level of the single organization to that of a complex network of agencies and in planning in terms of a community of interorganizational systems of which individual organizations constitute components or subsystems. Applying the term "system" to an organization implies "interdependence" of necessary input and output linkages, but also "independence" in the sense of

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maintenance of the integrity of system elements through boundary control processes. Human service organizations find themselves entering into relationships and decisions that are aimed at multilevel outcomes. These transactions and resource exchanges must be approached in terms of their relevance to community needs, interorganizational relationships, and intraorganizational requirements for system survival.

In one form or another, the fragmentation of human services has been attributed to the excessive autonomy of service agencies and to their attempts to preserve prerogatives about problem definition, intervention priority, and client disposition (Greenley and Kirk 1973; Levine 1974). From a community-organization perspective, the historic response has been to seek a pattern of coordinated services relying upon mechanisms that would ensure the autonomy of the individual organizations in areas of conflict while at the same time permitting their unified effort in areas of agreement (Litwak and Rothman 1970). The experience with voluntary coordination mechanisms in the human services field, however, has proven to be rather ineffectual (Warren 1973). More recently, greater attention has been paid to the managed forms of coordination in concerted decisionmaking among service agencies as well as to the ways conflict can result from such cooperative actions (Morris and Hirsch-Lescohier 1978). The relative efficacy of these forms, however, has yet to be carefully documented and their impact to be objectively assessed (Mott 1968; Aldrich 1978).

A decade of recession and inflation in the 1970s, in combination with the current climate of social and fiscal conservatism, has eroded the support base for large-scale intervention programs predicated on services coordination such as the Community Action, Community Mental Health Centers (CMHCs), Model Cities, Comprehensive Health Planning, and Service Integration Programs (Warren 1973; Agranoff and Pattakos 1979; Goldman et al. 1980). Instead, relatively modest programs that make limited demands on scarce resources have been advanced to coordinate existing health and welfare services. In the mental health field, this strategy underlies a number of the recent initiatives sponsored by the National Institute of Mental Health (NIMH) including Community Support Programs (CSP) for chronic mental patients (Turner and TenHoor 1978), Primary Health Care-Community Mental Health Center linkage projects (Broskowski 1980; Goldman et al. 1981), and the Most-In-Need Program for child mental health services (MIN 1979). Thus, both the development and evaluation of interorganizational service delivery systems in the mental health arena continue to be major concerns for policy-oriented research.

To a large extent the empirical evaluation of such efforts has been impeded by the lack of a research methodology capable of documenting the antecedents, concomitants, and consequences of these interorganizational relationships. In the last decade, however, the field of social network analysis has made great strides, and its research techniques can go a long ways in filling this gap.

The promise of the network perspective is nicely summarized by Knoke and Kuklinski (1982, p. 9-10):

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> . . . network analysis incorporates two significant assumptions about social behavior. Its first essential insight is that any actor typically participates in a social system involving many other actors, who are significant reference points in one another's decisions. The nature of the relationships a given actor has with other system members thus may affect that focal actor's perceptions, beliefs, and actions. But network analysis does not stop with an account of the social behavior of individuals. Its second essential insight lies in the importance of elucidating the various levels of structure in a social system. . . . In the individualistic approach, social structure is seldom an explicit focus of inquiry, to the extent that it is even considered at all. Network analysis, by emphasizing relations that connect the social positions within a system, offers a powerful brush for painting a systematic picture of global social structures and their components. The organization of social relations thus becomes a central concept in analyzing the structural properties of the networks within which individual actors are embedded, and for detecting emergent social phenomena that have no existence at the level of the individual actor. This dualistic quality of network analysis – its capacity to illuminate entire social structures and to comprehend particular elements within the structure – probably accounts for its rapidly increasing popularity among social theorists and researchers who have found the older individualistic tradition wanting as a framework for understanding social phenomena.

Network analysis techniques can be applied to the study of social phenomena at different levels of analysis ranging from interpersonal relations to small group, organizational, interorganizational, community, and even intersocietal transactions (Berkowitz 1982; Burt and Minor 1982). To date, however, these techniques have yet to be applied to mental health service system studies. The present volume is a first step in that direction. It presents an interorganizational network perspective for the study of local CSPs for the chronically mentally ill.

Community Support Systems: Concepts and Goals

One of the major challenges confronting mental health planners in the United States today is the development of community-based treatment and support programs for the chronically mentally ill (Talbott 1981; Bachrach 1981, 1982). Until recently, chronic mental patients were hidden away in a vast network of State institutions where they received custodial care, often on a lifelong basis (Dain 1980; Morrissey et al. 1980). In the 1960s and early 1970s, however, a variety of treatment, civil-libertarian, and administrative reform movements coalesced around the goal of deinstitutionalization or the closure of State mental hospitals and the relocation of patients in less restrictive community settings (Bachrach 1976; Bassuk and Gerson 1978; Morrissey 1982a). As a result, hundreds of thousands of patients were released from

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State mental hospitals to local communities that were unprepared to meet their treatment, rehabilitative, and housing needs.

The rapid depopulation of State hospitals was undertaken without careful coordination with community agencies to develop support services for the maintenance of large numbers of disabled patients outside of institutional settings. The new CMHCs had grown up largely as a separate service network without formal linkages to State hospitals (Chu and Trotter 1974; Windle and Scully 1976). These centers were oriented primarily toward new or underserved constituencies in their local communities, and many CMHCs were still in planning stages at the time of the initial influx of deinstitutionalized patients. Few had the well-developed spectrum of services required for the care of chronic patients such as halfway houses, group homes, and other residential programs. Moreover, the large-scale return of State hospital patients stimulated the social prejudices and economic worries of community members. Outraged citizens began to lobby for restrictive zoning of residential areas while actively opposing the creation of community residences. As a consequence, many expatients fell through the cracks of fragmented and incomplete community health and welfare services, and they often gravitated back to State hospitals or led isolated existences in inner-city areas (Reich and Siegal 1973; Koenig 1978; Drake 1982).

By the mid-1970s, the failures of the deinstitutionalization movement along with the gaps in community services for the chronically mentally ill were being extensively documented in the media and professional literature. These criticisms and exposes led to a new round of planning activities on behalf of chronic mental patients, a population now estimated to number between 1.7 million and 2.4 million Americans (Goldman et al. 1981).

At the Federal level, NIMH took the lead in addressing these problems by sponsoring the Community Support Program, a pilot demonstration initiative launched in late 1977. The goal of the program was to promote the development of local community support systems (CSSs) defined as ". . . an organized network of caring and responsible people committed to assisting a vulnerable population meet their needs and develop their potentials without being unnecessarily isolated or excluded from the community" (NIMH 1980, p. 2). As reported by Tessler and Goldman (1982, p. 12), these goals were predicated on three conclusions. First, the needs of people with chronic mental illness extend well beyond the boundaries of the mental health system and require coordinated efforts with a broad array of health and social welfare agencies. Second, even within the mental health arena, it is necessary to encourage local agencies to make long-term commitments to chronic patients whose full range of service needs are not easily reimbursable by third-party payors. And third, there is a pervasive need to clarify lines of responsibility for the chronically mentally ill at all levels of government.

According to the NIMH guidelines, a comprehensive CSS was to provide a range of essential service functions or components, including case identification and outreach services, assistance in applying for entitlements, crisis-stabilization services in the least restrictive setting, an array of psychosocial rehabilitation services, sheltered living arrangements, medical and mental health care, backup support to families and

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friends, mechanisms to protect client rights, and opportunities for involving concerned community members in service delivery (Turner and TenHoor 1978; Tessler and Goldman 1982). This was to be done through the designation of a local core service agency to plan and coordinate the system, and a single person (or team) to provide case management or resource management services to help individual clients use available programs and benefits.

As with the large-scale social intervention programs of the 1960s, services coordination was one of the program's basic strategies for promoting the development of community support systems. However, CSP differed from earlier federal seed money initiatives such as the CMHC and Model Cities programs in that massive funding was not available as an incentive for interagency collaboration. Between 1978 and 1982, for example, the total NIMH funding allocated for the CSP initiative amounted to only $20.5 million for projects in 19 states (NIMH 1983). These funds were not intended primarily to support direct services but rather to influence and promote better use of other funding sources and entitlements for direct client services.

In addition, unlike the human services integration projects that sought to overcome services fragmentation and duplication by creating umbrella agencies with unified authority structures (Agranoff and Pattakos 1979), CSPs relied primarily upon voluntary coordination mechanisms to promote resource sharing, joint planning, and continuity of care among otherwise autonomous community service agencies. The goal has been to foster linkages (formal and informal interorganizational relationships but especially formalized ones) among mental health, medical, rehabilitation, housing, and other agencies so that comprehensive networks of support services for chronically mentally ill persons will be available in communities across the country.

CSP designers recognized that "community support systems, as such, exist only in rudimentary form" (NIMH 1983, p. 1). Several major problems impeded the development of comprehensive service networks for the chronically mentally ill, including the lack of clear and coherent Federal and State policies regarding services to this population and the fragmentation and confusion of responsibility among the many health, mental health, housing, vocational rehabilitation, and other human service agencies serving mentally ill individuals. Thus, the CSP was viewed as a developmental framework for improving opportunities and services for adults with seriously disabling mental health problems.

Program designers also recognized from the outset that the size of the target population, the availability of service elements, and the optimal configuration of service providers would vary widely in different communities. Consequently, flexibility in adapting the general prescriptions and service requirements of the CSS model to the realities of programming in each local context was permitted and encouraged. In practice, this latitude resulted in a variety of CSS core service agencies and linkage arrangements. In the initial round of CSP contracts funded by NIMH, for example, core service agency functions in different States were provided by CMHCs, State mental hospitals, and nonprofit multiservice centers.

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The implementation and assessment of the CSP initiative during its first 5 years has been documented by Tessler and Goldman (1982). They indicate that NIMH's early evaluation efforts focused on an evaluability assessment of the CSP. As part of this assessment, the logical structure of the intended program was documented in terms of its inputs, activities, expected results, and the causal assumptions linking these different program elements. In addition, the plausibility of these causal assumptions was scrutinized in relation to the availability of program resources, planning schedules, and evidence that intended program activities had produced intended results in similar prior situations.

These assessments highlighted the centrality of systems change at the local community level as the long-term goal of CSP. The key causal assumptions held that the development of local CSSs will improve the quality, level, coordination, and comprehensiveness of services for the chronically mentally ill and that these system changes, in turn, will improve the quality of life for the target population. The plausibility analysis of these assumptions, however, indicated that (1) current levels of program funding are inadequate to stimulate the development of comprehensive CSSs at the local level, (2) the efficacy of a service coordination-collaboration approach to overcome the fragmentation of the service delivery system is highly questionable, and (3) interagency collaboration often does not result in identifiable benefits for service delivery and client outcomes (Tessler and Goldman 1982, p. 62-68).

These conclusions led NIMH planners to place a high priority on systems-level evaluations of local CSP projects. Given the program's rather primitive conceptualization and specification of system properties, further methodological and exploratory research was recommended in operationalizing systems concepts, developing appropriate measurement strategies, and running pilot tests in ongoing CSP projects. NIMH planners maintained that only through such efforts would it become possible to undertake field tests of the key causal assumptions and the empirical specification of those changes correlated with services improvement and enhanced client functioning.

Scope of the Research

The research upon which this report is based was carried out as part of the 1982-83 CSP research program sponsored by the Community Support and Rehabilitation Branch, Division of Mental Health Service Programs, NIMH. Its purpose was to illustrate the ways in which interorganizational research techniques can be used to measure and assess the systems dimensions of local community support programs. Many of the concepts and measures associated with the study of interorganizational relations (also profiled in an earlier NIMH publication – Morrissey et al. 1982) were used in a field study of two of the New York State CSP Demonstration Projects, in Schenectady and Syracuse. In addition, social network analysis procedures were used to identify the structure of resource flows among CSS agencies in each community and the extent to which these resource flows were overlayed by a system of interorganizational relationships.

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The attempt to develop CSSs can be seen as an experiment in the creation of interorganizational networks. As conceived by NIMH program designers, a CSP will concentrate on the development of ties among various community service, funding, and planning agencies that are relevant to the care of the chronic adult mental patient. Where services or functions are absent, new ones will be created and integrated into the system.

The expectation that each CSS will result in a unique structure recognizes the fact that the quality and quantity of interagency linkages is dependent upon preexisting conditions in each community. However, while the form will be different, a systems perspective implies that certain functions will always be present. Specifically, all systems (by definition) must coordinate interactions and reflect a certain degree of role differentiation and hierarchy. A theoretical approach that brings this systems perspective to bear on the analysis of CSPs offers the potential for identifying necessary system attributes regardless of the unique local form of the system and, therefore, the possibility of comparing CSP designs in different communities. A network theory provides a means of understanding the progress of individual CSPs in terms of the achievement of systematic relations. It also provides a set of constructs that permit cross-CSP comparisons.

The fact that CSPs develop from different starting points also implies the need for a theoretical framework that addresses how and why a system of relations will emerge. The emergence of a system is not a single-step process, but rather an incremental process that can abort at any time. The appearance of a stable, coordinated system is not inevitable, nor will identical forms develop in different communities. For research purposes, then, a framework is needed that is commensurate with this developmental perspective. Moreover, in order for systems planners to evaluate the status of their efforts to achieve a CSS, they must have a set of concepts and tools that can be used to assess their progress to date and their potential for future accomplishments. A theoretical perspective that incorporates a developmental emphasis can thus not only guide research efforts but serve as a yardstick for program planning and evaluation purposes as well.

This monograph presents such a perspective: The emergence of a true system of services is dependent upon a set of situational factors that affect the degree to which interorganizational relations are likely to appear and the extent to which such relations will be established formally. The pattern of resource flows in the network is the correct way to map the network and the perceived effectiveness of these patterns is a principal determinant of the likelihood of further system development. This perspective is essentially structuralist in nature. It focuses on transactions among agencies involving client, funding, and information exchanges rather than the informal and interpersonal relationships among individuals in the component agencies. The goal is to determine the extent to which these resource and information flows are overlayed by a formal decisionmaking structure that coordinates agency activity as a system of services and resources for the chronically mentally ill.

The data analyzed in this volume were gathered as part of separate research efforts in each community. The Schenectady data set was assembled in early 1980 as

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part of the local CSP evaluation in that community. Several analyses of these data have already been reported (Townsend 1980; Tausig and Townsend 1982). The Syracuse data set was assembled in early 1981 by the Special Projects Research Unit in collaboration with the Bureau of Community Support Projects, New York State Office of Mental Health. As similar measures and data collection procedures were utilized in each study, a comparative assessment of the systems aspects of CSP activities in each demonstration site was possible.

Both data sets were based on a cross-sectional survey of interorganizational relationships when the local CSP projects had been operational for 2 or 3 years. No data on client outcomes were obtained as a part of either survey. Consequently, neither the ultimate impact of CSS organization on client functioning nor the processes of system change in each community was addressed. Rather, this research was a field test of a theoretical framework and methods of data collection and analysis for assessing the nature and extent of systemic relationships among CSS agencies. The concepts and research procedures employed in this study provide a way of assessing the level of CSS development at any chosen time, and they can be incorporated in longitudinal studies addressed to processes of change and client outcomes.

Overview of the Report

The remainder of this volume is organized into several chapters. Chapter 2 presents an overview of the theoretical framework that guided the research. As noted earlier, the NIMH guidelines for CSS program development are based on the assumption that formalized relationships between community agencies are the optimum way of ensuring coordinated service delivery for the chronically mentally ill. These guidelines, however, offer little insight into implementation strategies or how such relationships can be developed at the local community level. A theoretical framework developed by Van de Ven and Ferry (1980) was adopted to account for the emergence and maintenance of formalized interorganizational relationships. This framework considers the <u>situational</u> preconditions that facilitate or inhibit the development of interagency relationships, the resultant <u>structure</u> and coordination of resource flows or interdependencies among agencies, and the extent of <u>system</u> articulation within interorganizational networks. The typology of managed coordination strategies articulated by Whetten (1981) and by Mulford and Rogers (1982) is used as a way of assessing the extent to which patterns of interorganizational linkages correspond to highly formalized or corporate levels of coordination.

Chapter 3 discusses the two field sites and the research methods employed in this study. The sites are described in terms of community characteristics, the composition and auspices of the CSP Demonstration Projects, and a brief history of program development as of the time of data collection.

The methods of data collection and analysis are discussed in several sections: First, how the network was bounded or the agencies were designated for inclusion in the study; second, data collection procedures and choice of agency respondents; third, measures of the situational, structural, and system properties of interagency

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relationships in each community; and finally, the data analysis procedures employed to derive network-level indices of the structure of interorganizational relations in each community. Technical details of the social network and multidimensional scaling (MDS) analyses employed in this study are reserved for an appendix.

The findings of the study are presented in four chapters following the component parts of the theoretical framework. Chapter 4 focuses on the situational factors or preconditions for interorganizational linkages in each community. Here are analyzed the levels of resource dependence, awareness, consensus, domain similarity, and the size of the CSS network of agencies in each community. Chapter 5 examines the structural properties of the two interagency networks, including the intensity of resource flows among agencies as well as the complexity, formalization, and centralization of interorganizational relationships. Social network analysis techniques are employed to identify structurally equivalent clusters of agencies that have similar patterns of client, fund, and information links with other agencies in the network. These structural properties are also used to assess the level of managed coordination attained in each network. Chapter 6 considers the systems properties associated with the structure of resource flows in each network. Block-modeling and MDS procedures are used to analyze intercluster relationships and the extent to which role differentiation and hierarchy can be detected in each network. Chapter 7 considers the perceived effectiveness of the interorganizational relationships and the nature of service gaps and coordination problems in each network as perceived by agency respondents.

Finally, chapter 8 summarizes the findings of this study and their implications for CSS program development. Recommendations are offered for the further development and use of the analytical methods employed in this study as well as for further research on CSS programs and, more broadly, mental health service delivery systems.

A Note on Terminology

Throughout this report a number of technical terms are used to identify concepts from the interorganizational research literature and from the methodological procedures employed in social network analysis. These terms are carefully defined and explained when they are introduced and, it is hoped, their usage will present few problems for the reader. Two sets of parallel terms, however, are used repeatedly for which no widely accepted definitional conventions exist: "CSP vs. CSS" and "network vs. system". So that the logic of the analyses will be clear, it will be helpful at the outset to indicate the ways in which these terms are used in this report.

The first set of terms has been a source of confusion for many practitioners in the field of community mental health services programming. NIMH staff have offered the following explanation in an effort to clarify the CSP/CSS distinction (NIMH 1983, p. 6):

> It is important to note a conceptual distinction which has emerged from the implementation of the Federal CSP within the States, and which often times has created confusion; that is, the

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> distinction between local community support systems and community support programs. A community support system (CSS) assumes responsibility for the target population and arranges for, develops and/or provides all of the necessary CSS components within a defined CSS planning area. Community support programs (CSP) provide a cluster of CSS components; that is, they provide specific program elements, but do not necessarily assume overall systems planning, organizing and management responsibility for the client population in a given area.

This statement suggests that there is a part/whole relationship between CSPs and CSSs. That is, when the referrent is to the entire array of community agencies providing services to the chronically mentally ill, the proper term to be used is CSS. In contrast, when one wishes to identify individual providers or groups of providers, the CSP designation is appropriate. This distinction is made throughout this report, with one additional specification. CSP denotes those providers who comprise the NIMH Demonstration Project in each community, thus a specific set of agencies rather than any subset of providers. These agencies provide only part of the service array that chronic patients are assumed to need. In contrast, the term CSS is used to refer to the entire collectivity of agencies (both CSP and others) that are involved in programming for chronic mental patients. This departs from the NIMH definition by not insisting that the CSS must assume overall management responsibility for the chronically mentally ill target population. Such systemwide management responsibility is an outcome rather than a starting condition of planned interventions like CSS. Indeed, the central thrust of this entire study can be seen as an effort to assess the extent to which such management structures have emerged in the two field sites.

The second set of terms (network vs. system) is susceptible to a number of alternative specifications. Here, the term network will be used to refer to both a method of analysis as well as a universe of community agencies. The first usage occurs in a special context with reference to a family of data analysis procedures (e.g., Knoke and Kuklinski, 1982). In this case, standard practices are followed in identifying data manipulation/configuration procedures as elements of network analysis.

It is in the second usage of network that some confusion may arise. Here, the term is used to identify the total array of agencies in each community that were included in the study. In general, this usage is merely a convenient way of naming the agency universe, and no assumptions are made that these networks have any particular level or form of social organization. When referring to the organizational dimension, the term system is used. Thus, the ultimate concern is to ascertain the extent to which the network of agencies (or segments of the overall network) constitutes a system of services for the chronically mentally ill. In this sense, system is a derivative concept that characterizes the level of organizaton among network members.

To summarize the above points, this report deals with local CSPs as the core group of agencies that have taken the lead role in developing a CSS in each community. The full array of CSS-relevant agencies are described as an interorganizational

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network, and the ultimate concern is to determine the extent to which these networks have developed an identifiable system of services for the chronically mentally ill. This is done by employing an interorganizational framework and a number of the statistical procedures developed in the field of social network analysis.

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THEORETICAL FRAMEWORK FOR ANALYZING THE EMERGENCE AND MAINTENANCE OF COMMUNITY SUPPORT SYSTEMS

The previous chapter suggested that the proper way to evaluate the CSP initiative is to adapt a perspective that views the problem as one of emergence and maintenance. The effort to create systems of services for the chronically mentally ill is based on the observation that mental health and other human services are not well coordinated and that this lack of interagency organization negatively affects client outcomes (Warren 1974; Cumming 1974; Leopold and Schein 1975; Agranoff and Pattakos 1979; Tessler and Goldman 1982).

The problem of establishing systemic relations among service providers must, therefore, be viewed within a developmental perspective. That is, CSPs should be assessed in terms of progress toward creating conditions that encourage the formation of interorganizational systems. A clear corollary of this assertion is that CSP evaluations must also be able to assess conditions that contribute to the maintenance of such relationships over time.

Formal ties among organizational actors such as are proposed by CSP developers are presumed to create interorganizational relationships and, after they are formed, a basis for maintaining the relationships. Clearly, however, there is an enormous gap between initial conditions in a community with little or no formal patterning of interagency relations and the ultimate appearance of a tightly bound, formally structured system of actors. What is needed, then, is a theoretical framework that is capable of explaining how a given set of uncoordinated actors might emerge as a system of coordinated actors. Moreover, the framework must also be able to specify how conditions at various points in this process will be related to the forms of coordinated activity most likely to appear at a subsequent stage.

The focus of the CSP initiative and most interorganizational theory is on the attributes and consequences of forms of systematic interrelations. The intent is to understand how different systems of interagency relations affect client outcomes or how different structures affect system behavior. This focus, however, involves two assumptions: (1) that a system of actors has already developed and (2) that behaviors of individual actors in the system are related to the division of labor and structure in the system. This focus needs to be broadened to include an understanding of the conditions that give rise to an interagency system and the processes involved in its generation. Consequently, this theoretical discussion begins by outlining conditions that affect the emergence of interagency systems.

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Theoretical Approach and Assumptions

Few examples of systematic theory regarding the emergence and maintenance of interorganizational networks are found in the literature. However, the approach developed by Van de Ven (1976) and Van de Ven and Ferry (1980) offers a consistent outline for organizing such an inquiry and was adapted as a guide for this investigation. [1]

Their framework begins with a set of assumptions concerning the motives and actions that shape organizational members' decisionmaking with regard to interorganizational relationships (see exhibit 2-1). They portray the individual organization as a reluctant participant in interorganizational relationships.

Exhibit 2-1. Assumptions regarding organizational attitudes and behaviors in an interorganizational context

1. Organizations strain to maintain their autonomy.
2. Organizations maximize gains and minimize losses in becoming involved in relationships with other agencies.
3. Organizations attempt to protect and enhance their domain.
4. Increases in the size of the interagency network and in the amount of resource flows between agencies increase problems of integration and pattern maintenance of the interagency network.
5. Interagency networks emerge incrementally and grow with successful previous encounters at coordination.

As Van de Ven and Ferry (1980, p. 307) remind us, "organizations do not coordinate for coordination's sake. Indeed, organizations strain to maintain their autonomy." Interorganizational relations involve costs as well as benefits to participants. Each organization gives up some control over its own affairs and decisionmaking flexibility. Each organization must also invest some of its scarce resources in developing and maintaining its external relationships. This reluctance to form relationships is a continuous barrier to the development of stable interorganizational structures.

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[1] This analytic scheme does not address all the important determinants of the structure of interorganizational networks. It does not, for instance, consider the political or fiscal climate, legal mandates, or preexisting power relationships among network agencies. Nevertheless, it should provide an adequate guide for illustrating the application of network analysis techniques in assessments of mental health service systems.

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Despite this aversion to forming linkages, organizations frequently encounter conditions that compel their participation in interorganizational relationships. When organizational goals require resources that are not available within the organization, then external sources must be tapped. Moreover, organizations may share goals with other agencies, seek opportunities for their own advancement, or be compelled by a legal mandate to form interorganizational associations.

Accordingly, the environment or situation in which agencies find themselves affects their readiness to form interorganizational relations. The strain for autonomy is balanced by forces encouraging association. In order to develop expectations concerning the flow of resources among agencies and the resultant structure, the situational characteristics that affect this balance of forces must be understood.

Situational Factors

The beginning status of interagency relationships (i.e., informal and uncoordinated) strongly suggests that the initial situational conditions must be known before trying to interpret the patterns of relations that develop as a result of planned coordination efforts such as those represented by the CSP initiative. Van de Ven and Ferry (1980) have outlined six situational factors that affect the emergence of interorganizational systems (exhibit 2-2).

According to this framework, the structure of an interagency network can be largely explained by its situational factors. This assertion underscores the importance of assessing situational conditions when developing program policies aimed at forming CSPs. For example, if the community of agencies is characterized by a high level of resource dependence and strong consensus about how to serve the adult chronic mental patient, then a formalized set of relationships is more likely to emerge than if the level of resource dependence is low and agencies do not agree on service goals and sequences.

Resource dependence: The degree to which an agency's own resources are sufficient to reach a given objective. When goal attainment requires resources beyond those directly and autonomously controlled by the agency, resource dependence is created. Agency dependence on others for resources (e.g., clients, funds, technical assistance, legitimacy) provides an incentive for that agency to develop and maintain interorganizational relationships.

Response to problem, opportunity, or mandate: The agency actors' perception of the importance of community-wide issues and the opportunities available within the network of agencies to either resolve the issues or improve the agency's position through greater participation. Responses to mandated forms of interaction must also be investigated. Johnson (1979), for instance, argues that organizational response to mandated change is a function of organization members' perceptions of the amount of change required for compliance. Hall et al. (1977) argue that mandated linkages often are associated with higher degrees of conflict. In short, the organizational commitment to the objective that serves to justify interorganizational ties affects the likelihood that the ties will develop.

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Exhibit 2-2. Situational factors affecting emergence and maintenance of interagency networks

1. Resource dependence
   - Agency's need for external resources
   - Agency's need for other agencies in network

2. Response to problem, opportunity, or mandate
   - Perceived willingness to respond to external problem, opportunity, or mandate

3. Awareness
   - Knowledge of system needs, problems, or opportunities
   - Knowledge of other agency's services and goals
   - Personal acquaintance of agency representatives

4. Consensus
   - Agreement among agencies on solutions to needs or problems
   - Agreement on services and goals of agencies in network
   - Conflict on means and ends of network

5. Domain similarity
   - Sameness of agency goals, services, staff skills, and clients with other agencies in network

6. Size
   - Number of agencies in network

Awareness: What agency actors know about other agencies. Knowledge of the distribution of resources and other instrumental capacities possessed by other actors, enables agency actors to judge the kinds and extent of interorganizational ties that will be advantageous.

Consensus: The degree to which agency representatives in the network agree on the goals and problems that each agency takes upon itself. That is, consensus within the network about the roles and degree of participation appropriate for each agency facilitates interorganizational relationships. The more successful agencies are in establishing this consensus, the more likely that interorganizational relationships will emerge.

Domain similarity: The overlap in clients, funding sources, and activities among different agencies. Domain similarity may stimulate interorganizational relationships by promoting awareness and consensus. On the other hand, competition for clients or money that arises because of high domain similarity may inhibit interagency relationships.

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Size: The number of agencies in the network. The more agencies, the more effort and resources required to integrate and coordinate them. The ability to create consensus and commitment is affected by the number of separate agencies who need to be included. The size factor is partially dependent upon how one chooses to draw the boundaries for the proposed network. In a given community many agencies have contact with, and provide some service for, the chronic adult mental patient. In planning the components of the CSS, however, decisions must be made concerning which components (and agencies representing these components) to include. The wider the boundary, the less likely that factors of commitment, awareness, and resource dependence will be favorable for the formation of systematic interorganizational relationships.

Structural Factors

When Van de Ven and Ferry (1980) argue that situational factors largely determine the structure of the network, they are referring to the pattern of resources that flow among organizations in the network; the focus is on the situational factors or preconditions for interorganizational relationships among the CSS agencies in each community. Their analysis also extends to the structural dimensions of the interorganizational linkages that exist among these agencies. In its most general meaning, structure consists of "regularities in the patterns of relations among concrete entities" (White et al. 1976). As defined by Van de Ven and Ferry (1980, p. 299), an interorganizational network[2] consists of "the total pattern of interrelationships among a cluster of organizations that are meshed together as a social system to attain collective and self-interest goals or to resolve specific problems for a target population."

Exhibit 2-3 presents the structural dimensions of Van de Ven's framework. These four dimensions are: (1) **intensity** – the amount and frequency of resource and information flows among agencies in the network; (2) **complexity** – the number of different clusters of agencies in the network that must be integrated if the network of relations is to act as a system or unit and the number of resources transacted; (3) **formalization** – the degree to which rules, policies, and procedures govern the relationships among network agencies; and (4) **centralization** – the degree of inclusive or concerted decisionmaking by agencies in the network and the degree to which resource flows are centered on one or a few actors.

Network Intensity and Complexity. Resource and information flows are the basic defining characteristics of interorganizational relationships. Resources are the "units of value transacted between organizations" (Van de Ven and Ferry 1980, p. 301). Typically, resource flows are defined in terms of money, physical space and equipment,

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2 In contrast to the terminology introduced in chapter 1, Van de Ven and Ferry's definition does not treat network and system as distinct concepts. These different usages do not affect the description or interpretation of the structural factors presented in the following section.

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Exhibit 2-3. Structural dimensions of interorganizational networks

1. Intensity
   - Amount of resource flows among agencies in network
   - Frequency of information flows among agencies in network

2. Formalization (standardization)
   - Codification of interagency agreements and contacts
   - Standardization of resource flows in the network

3. Complexity (differentiation)
   - Number of different resources transacted in network
   - Number of cliques and subgroups in communication network

4. Centralization
   - Extent interorganizational Committee decisions are binding upon members
   - Centrality of resource and communication flows in network

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staff, customer or client referrals, and other materials or services. Information flows are messages or communications transmitted among agencies in the form of written reports and letters, phone calls, face to face discussions, and group or committee meetings. The intensity of network relationships is measured by the number of resource and information flows among the component agencies.

The flow of clients, funds, and information can be overlayed to identify agencies that display identical or highly similar patterns of relations with all other members of the CSS. Agencies with similar or identical patterns of relations are termed structural equivalents because they occupy the same position in the network (Burt 1976; 1978a; 1978b). The complexity of the network is measured by the number of these unique positions or structurally equivalent groups. The construct of structural equivalence is an important one because it provides the basis for describing the complexity of resource flows as well as for assessing the levels of network and systemic coordination.

This is a good time to explain the difference between network analytic approaches and those that rely on the analysis of dyadic relations or focal actors. Dyadic relations simply show how two actors are directly related to one another. They cannot be used to explain why a particular dyadic relation has appeared (as opposed to those that have not) and they do not permit an examination of indirect ties such as a mediated relationship of Agency A to Agency C through Agency B. Agencies A and C may have no direct dyadic relationship yet be indirectly linked to each other through B. Agency B may provide a broker-type service with A referring clients to B who, in turn, sends clients to C.

Analysis can also focus on the total set of relations centering on a focal actor, say Agency B. In this case, Agencies A and C are related through B, but whether A has any independent relationship to C is unknown. If Agency B is a central funding agency, for instance, how Agency B transfers funds can be examined, but this will not reveal if agencies receiving funds have any other sources of funding.

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Finally, the complete set of relations between all actors in the network can be analyzed. This approach shows both direct and indirect relations and how the complete pattern of resources is distributed. This level of analysis reveals whether A has an indirect relationship with C through B and also all other relations A may have. For instance, if A depends on B for funding, is this dependence exclusive or can A also draw funding from other actors? In the former instance, A would be highly resource dependent on B and in the latter instance, less or not at all dependent.

The network level of analysis, then, shows the entire set of relations that form the structure of resource flows in the network. The degree of resource dependence, complexity, formalization, and centralization for the network as a whole can be characterized. The unit of analysis is the network and not the individual actors in the network.

If the network is more than a random collection of actors, then some or all members of the network will have common patterns of interaction with other members. That is, roles or functions within the network should emerge. For example, all direct service agencies might have a common set of relations with funding and planning agencies. These agencies would be structurally equivalent because they have very similar or equivalent relationships with other actors. Thus, structurally equivalent groups represent the degree of differentiation in the network. The discovery of structurally equivalent groups within a given network leads to the further exploration of the extent and manner in which these clusters of actors are coordinated with each other.

Network Formalization and Centralization. Formalization and centralization refer to structural properties that reflect concerted action or integration of activities among network agencies. As Van de Ven and Ferry (1980) note, agreements among agencies become formalized in order to manage uncertainties. When there are variations in resource flows in the community, agencies often have to adjust their behaviors toward one another. Verbal understandings and ad hoc relationships become less dependable as the flow of resources becomes more variable. Agencies seek ways to regulate, or routinize, relations among themselves that are based on resource exchange. One way of doing this is to initiate written agreements or contracts that spell out mutual obligations. The extent to which written/contractual agreements are used is thus one measure of the formalization of interagency relationships. Relationships that are based on person-to-person relationships or verbal agreements are considered informal.

Centralization refers to the locus of decisionmaking in the network. Drawing upon the work of Warren et al. (1974), Van de Ven and Ferry (1980) indicate that over time certain aspects of interagency decision making are pooled. Although such decisionmaking is initially ad hoc with little centralized authority, eventually concerted decisions are made by a board, committee, or group. These concerted decisions are more binding on participating agencies.

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Relationships Between Situational and Structural Factors

Van de Ven and Ferry (1980) argue that situational factors largely determine the structure of resource flows in an interorganizational network. The degree to which an agency is dependent on the network and its willingness to commit itself to network goals are contingent on situational factors. This implies two things: (1) that system developmental plans must focus on the manipulation of situational factors in the network and (2) that the emergence of a coordinated system of interagency relationships will be an incremental process.

Emergence and Structure of Network Relationship. Exhibit 2-4 presents Van de Ven and Ferry's hypotheses concerning the emergence and structure of interagency networks. The pattern of resource flows is assumed to be dependent on the status of the situational factors. A linear relationship is postulated between resource dependence, awareness, willingeness to respond to external issues, consensus, and network intensity (hypothesis 1). The greater the level of these situational factors, the more intense the interagency linkages. The more frequent and multifaceted the resource exchanges, the more likely that such contacts will become formalized and subject to centralized decisionmaking (hypothesis 4). These hypotheses clearly indicate the importance of interagency contacts as a basis for building a system of services. The more agencies interact with each other, the greater will be the tendency to formalize these contacts.

Exhibit 2-4. Hypotheses on emergence and structure of interagency networks

1. The intensity of an interagency network is a function of resource dependence, awareness, willingness to respond to external issues, and consensus.

2. There is a concave (n-shaped) relationship between domain similarity and the intensity of an interagency network.

3. The greater the number of agencies in a network, the greater the formalization, centralization, and complexity of the network.

4. The greater the intensity of an interagency network, the greater the formalization, centralization and complexity of the network.

5. The greater the perceived effectiveness of an interagency network at time 0 (zero), the greater the interdependence and issue commitment among the agencies at T + 1, over time periods 0, 1, 2 ... n.

Not only is frequency of interaction related to the development of systematic structure, but so is the number of agencies in the network (hypothesis 3). This hypothesis reflects the relationship that is often postulated to exist between differentiation and integration in the general organizational theory literature (e.g., Hall 1982). However, here is also seen the dilemma of attempting to construct a stable

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system of relations. When many agencies are involved in the exchange network, the tendency for agencies to seek autonomy must be overridden by a formal and centralized system of decisionmaking. However, this formal system is more difficult to create because a large network of agencies is unlikely to have common degrees of resource dependence, awareness, and commitment. Large networks of agencies can be maintained best by formal agreements and centralized decisionmaking; yet the larger the size, the more difficult it is to obtain formal agreements and willingness to accede to central decisionmakers.

These countervailing pressures have obvious implications for the CSP systems development logic. If the CSS is defined narrowly to include only the CSP core service agencies, then the network will be rather small, and formalization may not be necessary to control network interaction (formalization may arise because of the intensity of interactions, however). If the CSS is defined broadly to include a wide range of services only available by greatly expanding the number of community agencies involved, then formalization and centralization will be essential but difficult to accomplish.

Emergent networks, both large and small, must also cope with the concave relationship hypothesized for domain similarity and intensity (hypothesis 2). Small networks may reflect high domain similarity, which reduces the likelihood of intensive relationships because of competition for identical resources. Large networks are likely to have so little domain similarity, however, that the incentives for establishing relationships are weak. In practical terms, the decision to include only CSP core service agencies in the CSS network may make the development of interagency ties more difficult because of the competition for clients and funds. The decision to expand the CSS network to agencies that serve the chronic patient but have a primary commitment to other types of clients means that this more disparate group of agencies will have less interest in the particular needs of a subset of their clientele. A strategy based on increasing resource dependence is more viable at this level than one that depends on mutual awareness and commitment.

Resource flows, then, are largely conditioned by the situational context in which the flows take place. The degree of interdependence (exchange) and the degree of network formalization, centralization, and complexity are functions of the conditions with which the putative system is confronted.

The hypotheses just outlined do not provide a quantitative standard for determining when a given situational factor will contribute to, or detract from, the formation of resource flow structures. They do, however, suggest the conceptual linkages that must be evaluated empirically in order to understand the specific structures discovered by network analysis procedures.

Coordination of Network Relationships. Collectively, the dimensions of intensity, complexity, formalization, and centralization provide a way of describing the structure of resource flows within an interorganizational network. These dimensions can also be used to characterize the level of managed coordination that occurs in the network.

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This discussion and analysis follows the typology of managed coordination strategies articulated by Whetten (1981) and by Mulford and Rogers (1982). The concept of managed coordination suggests that the actor-members of the network are, to some extent, consciously engaged in an attempt to direct resource flows, decisionmaking, and joint behavior. Three forms or strategies of managed coordination can be distinguished: (1) mutual adjustment, (2) alliance, and (3) corporate. These three strategies vary in terms of intensity, centralization, formalization, and scope of the coordination activity. Mutual adjustment is the weakest form of coordination, while corporate is the strongest (Whetten 1981).

The mutual adjustment strategy typifies the coordination that occurs in a competitive market. There are few if any shared goals, linkage efforts tend to focus on specific issues, and few if any resources are committed to joint activities. This implies several consequences for the structure of interagency coordination. First, the density or degree of connectivity in the resulting CSS network is low since relations between agencies only exist when there are perceptions of mutual advantage in creating such ties. Second, participants retain a strong sense of identity as autonomous agencies because their exposure (awareness) and commitment to other agencies in the CSS network is low. Under such circumstances, it is unlikely that relationships between agencies will be complex or highly formalized or that agencies would be willing to grant centralized decisionmaking authority to outside actors.

The corporate form of coordination occurs under the umbrella of an overarching authority structure. This type of managed coordination contains the highest level of formality and requires the highest degree of resource commitment by participating agencies to the network as a whole. A strong central administration establishes systemwide policies, monitors their implementation by member agencies, and coordinates the specialized contributions of these agencies to the interagency system's goals. As Whetten (1981, p. 13), points out, "the objective of a corporate interorganizational design is to closely approximate the control features of a single multiunit organization." As such, coordination tends to be based on intense relationships, with formalized and centralized decision processes, and a wide scope of joint activities.

The alliance strategy is an intermediate form of coordination that contains elements of both the informal mutual adjustment strategy and the formal corporate strategy. It represents an effort to coordinate autonomous organizations without the authority of a formal hierarchy. Alliance strategies encompass a wide range of organizational forms such as federations, councils, and coalitions (Clark 1965; Warren 1967; Mott 1968; Aiken et al. 1975). While a central administrative unit might be present, it typically responds to the wishes of member agencies. In other situations, the authority system is more informal, and decisionmaking power rests with each member agency.

These three types of coordination represent a continuum of structures for managing the interdependencies among agencies in an interorganizational network, ranging from informal to progressively more formal arrangements. The more intense and broader based these interdependencies become, the greater the likelihood that coordination efforts will shift from mutual adjustment to alliance or corporate forms.

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The form of coordination that is likely to emerge in the CSS networks can now be considered. As described earlier, the bases for interdependence among CSS agencies appear to be the following: (1) shared funding, (2) shared clients, and (3) shared information. While these are not the only bases for concerted interaction, they do create a structure of interdependencies. Shared funding is, perhaps, the most effective means of attracting participation in a system of relationships. In this situation, a relatively high degree of managed coordination can be attained. The dispenser of funds is able to constrain the actions of potential recipients, to formally specify the conditions (including types of services and clients) under which resources may be received, and to control actor behavior in the absence of alternate funding sources.

Shared clientele requires a moderate degree of coordination, but it places actors in a partially adversarial relationship, since the client represents a zero-sum commodity. The client can receive only so much service in a day. Moreover, when the client is entitled to services under a particular auspice, services outside that auspice must be negotiated on a case-by-case basis.

Shared information is, conversely, the most amorphous basis for a structure of managed coordination. The value of information about a client or services is the most difficult for an agency actor to assess. Therefore, the costs and benefits of information exchange are hard to evaluate in the market economy of human services. At the same time, information is power and, hence, actors have a rational interest in withholding information until satisfactory terms of exchange can be negotiated. Even the least powerful actors may control needed information and, therefore, no well-defined dominance hierarchy is likely to emerge given the motivation for actors to retain their autonomy. Moreover, negotiating agreements based solely on information exchange are the most difficult because the worth of information can vary greatly.

In sum, a CSS network organized around funding exchanges is the most likely to induce a highly formalized and centralized form of coordination (the corporate strategy). Networks organized around the exchange of clients display an intermediate level of coordination and mediated exchange (alliance strategy), and relationships based solely on information exchange are least likely to go beyond informal, ad hoc forms of coordination (mutual adjustment). Of course, most CSS networks are likely to entail a mix of funding, client, and information transactions. Accordingly, the nature of the coordination strategy that emerges in any operational CSS network will be highly dependent on the particular combination or mix of these resource transactions. Networks based primarily on client and information flows, for example, have less opportunity to develop a highly formalized and centralized network of services than those that also have an overlay of interagency funding flows. To the extent that interdependencies vary within segments of the overall CSS network, however, it is possible for different forms of coordination to coexist in the same network.

The Network as a System

The question of whether a network is a system is difficult to answer. It would seem that everyone can recognize a system, but it is difficult, in the abstract, to define

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one. In their complete or fully developed form, all systems display differentiated functions that are hierarchially controlled. Even if the components of a system can exist independently, their function in the system is determined by their presence in it. Their independence is subordinated to the requirements of organizing a series of functions in the service of a system-level outcome.

The structure of resource flows adduced from the network analysis indicates the underlying conditions for the existence of some form of managed coordination. However, the capacity to depict structure does not assure that the expected system properties (e.g., role differentiation and hierarchy) are present. In other words, structures may be said to vary in terms of the degree to which they represent tightly bound, regulated, and organized entities. There is a qualitative difference between a system and an unorganized network of actors. In a fully developed system, everything actors do is oriented to the collective set of actors and addresses issues that only exist because the system requires maintenance or joint decisionmaking. By contrast, interagency contacts in a network tend to be opportunistic and oriented toward particularistic interests.

Evaluating the level of network coordination requires examining the extent to which the relations associated with each cluster of organizations are formalized and centralized without examining the way in which the clusters themselves are actually arranged hierarchially and in terms of specialized functions. Determining the degree to which a system is present requires examining the extensiveness and structure of relationships between these organizational clusters or structurally equivalent groups. This includes finding the extent to which the flow of resources in the network results in the appearance of roles and hierarchies that refer to the network as a whole and not merely to its parts.

If the CSS is indeed a system, it must have more than a regular pattern of resource flows. The individual identity of an agency (or group of agencies) would become submerged in the role it plays in the functioning of the system. A pattern of constraint that serves to integrate these different roles would also be expected.

The CSS literature has not unearthed this expectation. Rather, a system in CSS usage refers to the creation of required linkages among parts of the existing network of services, planners, funders, etc. It must, however, be expected that the creation of these linkages has consequences for the identities and roles of the various organizations so linked. The degree and types of interactions that linkages among organizations permit should be expected to affect the nature of interactors. Specifically, occupants of positions (agencies) within the network would take on specialized roles with respect to the whole network of actors and the relationships between positions would be hierarchially structured. In this regard, to be defined as a system a CSS must include evidence of differentiation and hierarchy in addition to the simple existence of linkages. The task of the CSS is, then, not merely to establish relationships but to organize those relationships so that cracks in the network do not appear.

The previous discussion of the forms of network coordination provides the expectation that a true system is unlikely to emerge when funds are not widely

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transferred among agencies. This, however, does not necessarily imply that a failure to detect intense funding flows obviates the formation of a system. Rather, it implies that the degree to which resource flows reflect system-level transactions will vary. That is, there can be gradations of systemness just as there can be gradations in the degree of managed coordination.

Perceived Effectiveness of Interagency Relations

The development of a CSS can be profitably viewed as a problem of network emergence and maintenance with situational factors affecting the emergence of the network. According to Van de Ven and Ferry (1980), the maintenance of the network is a function of the perceived effectiveness of the network. Using the logic of an emergent process, both the willingness to remain in a network at a given level of system development and the possibility of increasing that level depend on the perceived effectiveness of the existing structure. Van de Ven and Ferry hypothesize that higher levels of perceived effectiveness improve the prospects for greater interdependence and issue commitment in the future (see hypothesis 5, exhibit 2-4).

To the extent that agencies carry out their interorganizational commitments and believe relationships are worthwhile, productive, and satisfying, they will continue (maintain) or further develop their interorganizational relationships. A high level of perceived effectiveness in these terms, however, does not necessarily imply that the interorganizational network is adequate to meet all needs for service, planning, and resource distribution. Rather, it indicates the potential for, and to some extent, the direction for change in the pattern of relations. Agencies may find the current network relationships satisfactory because they minimize interdependence rather than because they are perceived to support adequate levels of service delivery, interagency planning, and resource procurement.

In order to determine the potential for further development of coordinated relationships, then, agency perceptions of network issues must also be assessed. This additional information will show whether the expressed level of satisfaction with interagency relationships is likely to result in a continued interest in development of the system or in the maintenance of the status quo. If service gaps are cited and coupled with a positive perception of interagency experience, further development (emergence) of the system is likely. If service gaps are not perceived, but the network is assessed positively, maintenance of developed relationships is more likely. When the perceived effectiveness of interagency relationships is low, then neither system maintenance nor further system development is likely to occur.

Although the ultimate standards of success for the CSS may be expressed in terms of improved client outcomes, lowered costs, and lower burden on family and the community, etc., the perceived effectiveness of the network is a more appropriate indicator from the point of view outlined here. Although this criterion is limited to the assessment of developmental status and prospects, it is consistent with the argument that the intermediate goal of CSP is the construction of a system of services (Tessler and Goldman 1982). The relationship between level of success in client outcomes or any

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other criterion and the effort to construct a system can only be evaluated by understanding the developmental status of the CSS system.

Overview of Research Framework

This chapter has referred to a variety of theoretical constructs that apply to differing levels of analysis in the description and assessment of interorganizational relationships. To avoid any confusion in subsequent chapters, the levels of analysis and relationships used in the study reported herein will be described. Exhibit 2-5 presents a schematic representation of the research framework in terms of the key issues addressed, the corresponding levels of analysis, and the empirical referents associated with each issue.

The first issue addressed was the extent to which conditions in the Schenectady and Syracuse networks were conducive for the emergence of patterned relationships among agencies. This issue was examined at the dyadic level of analysis. The focus was on the total number of pairwise relations among CSS agencies in each community. The dyad or pairwise relationship is the basic building block for studying interorganizational relationships. Each distinct relationship between pairs of agencies will be enumerated with reference to the six situational factors identified in exhibit 2-5.

Situational factors place limits on the degree of resource flow between agencies. These factors do not cause resource flows, but they facilitate or inhibit them. When scores on the situational factors are high in a given community, for example, a relatively high degree of resource exchange is likely but not inevitable. Intense resource flows, however, are unlikely if scores on situational factors are low. Moreover, it seems clear that situational factors are the ones that can be manipulated by CSS developers. Increasing the degree of commitment between CSS agencies, for example, may facilitate efforts to better organize the structure of resource flows.

The second issue was the extent to which resource flows in the Schenectady and Syracuse CSS networks were structured or organized into identifiable patterns. This issue was examined at the network level of analysis with reference to the concepts of intensity, complexity, formalization, and centralization. At the network level of analysis, the primary focus shifts from the relationships between pairs of agencies to patterns of relationships among an identifiable group of organizations bound together by allied domains, geography, target client populations, or problems (Van de Ven and Ferry 1980, p. 299). The frequency of pairwise or dyadic relationships that involve client, information, or fund transactions provides an index of the intensity of resource flows between agencies in each network. Network analysis techniques are then used as a means of aggregating these dyadic relationships into structurally equivalent groups of agencies that share common patterns of resource flows. The number of such structurally equivalent groups serves as the index of network complexity. The level of formalization and centralization of the relationships associated with these groups of agencies provides insight into the structure and pattern of resource flows in each network. These data also provide a basis for characterizing the level of managed coordination in each network.

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Exhibit 2-5. Schematic representation of research framework

Issue	Level of Analysis	Empirical Foci
1. **To what extent are conditions conducive for the emergence of an inter-organizational network?**	Dyadic	Situational factors → Resource flows . Resource dependence . Responsiveness . Awareness . Consensus . Domain similarity . Size . Clients . Information . Funds
2. **To what extent is this network organized into identifiable patterns?**	Network	Resource flows → Structural groups . Intensity . Complexity . Formalization . Centralization Coordination strategies . Mutual adjustment . Alliance . Corporate
3. **To what extent does the level of network organization have systemic characteristics?**	Systemic	Structural groups → Systemic characteristics . Role differentiation . Hierarchy
4. **To what extent are system members satisfied with their interagency relationships?**	Systemic	Perceived effectiveness . Worthwhile . Productive . Satisfying . Service gaps/problems

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In combination, these structural dimensions provide a way of characterizing the extent and manner in which resource flows are organized in each CSS network. Determining the status of situational factors alone does not explain the flow of resources in the network nor the degree to which these flows are organized. The structural dimensions of resource flows are not as directly manipulatable as the situational factors. Rather, if the degree of formalization in a CSS network is thought to be low, then situational factors that inhibit the development of formal relations must be addressed by program developers to enhance the level of network organization.

The third issue was the extent to which the form of network organization in Schenectady and Syracuse entailed elements of a system. This issue was examined at the systemic level of analysis, looking for evidence that the structure of resource flows had or had not resulted in the emergence of role differentiation and hierarchy among structurally equivalent groups. These are system properties that are not necessarily indicated by the analysis of resource flows in terms of intensity, complexity, formalization, and centralization. At the network level it may be important to know which agencies have formal relations with which other agencies, but at the systems level it is important to know whether these formal relations represent an attempt to organize the network qua system. Thus, there is no causal relationship between the structure of resource flows and the degree of managed coordination. The two interests represent different ways of looking at the same data.

The fourth issue was the extent to which member agencies were satisfied with the level of system development attained in the Schenectady and Syracuse CSS networks. This issue was also addressed at the systemic level of analysis with reference to the effectiveness of interagency relationships as perceived by the occupants of structurally equivalent groups. In addition to satisfaction with these relationships, the extent to which such relations were viewed as worthwhile and productive was also investigated. The extent to which service gaps or coordination problems confront further efforts at systems development provides a means of identifying focal points for future collective action. Taken together, these assessments provide a feedback loop with regard to the perceived need and opportunity for further efforts at systems articulation and development.

There was one final issue regarding causality and the data analysis used in this study that must be acknowledged at the outset. Namely, interagency systems must be viewed as emergent forms of organization, and this clearly suggests the use of longitudinal data sets. This study, however, was cross-sectional in that variables and constructs were measured only once for each CSS network. These data do not allow for an analysis of the processes or sequence of systems emergence in the two field sites nor do they permit strict tests of some of Van de Ven and Ferry's hypotheses. At the same time, these cross-sectional data are adequate to illustrate the usefulness and applicability of the methods and to capture the existing structure of resource flows and organization. Therefore, while a theoretical framework has been outlined that assumes a developmental perspective for analyzing CSS networks, a rigorous test of the underlying causal hypotheses must await over-time data from a large sample of communities. This framework and findings are presented as a guide to such research.

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Summary

The CSP initiative represents an attempt to build formal systems of community services for the adult chronic mental patient. As such, it makes assumptions about the way in which resources flow in the network of community services and how these flows should be systematically organized.

This chapter has presented a theoretical rationale for examining the process of emergence and maintenance of systems of interorganizational relations. The analysis suggests first examining situational factors in the interorganizational environment. These factors explain the structure of resource flows that are observed in the network. The network of resource flows, in turn, is coordinated according to one of several management strategies. The extent of role differentiation and hierarchy are used to estimate the level of systemness in the network. Finally, the perceived effectiveness of existing relationships indicates the potential for further development or network maintenance.

The status of situational factors, the subsequent structure of resource flows, and the level of coordination provide an image of the organization of CSS services in a given community. The viability of creating a system can be estimated by evaluating the situational preconditions for system emergence. Coordination strategies can then be approximately matched to situational and structural conditions. Seen as a process of emergence, evaluations of network effectiveness can help determine the viability of altering situational characteristics for the purpose of further developing systemic interorganizational activities.

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3

FIELD SITES AND RESEARCH METHODS

This chapter describes the research procedures employed in the study of CSP projects in Syracuse and Schenectady. The presentation is divided into four sections: first, a brief overview of the two field sites and the status of CSP activities at the time of the study; second, the ways in which the CSS networks were bounded or how decisions were made to include agencies in the study; third, data collection procedures and the measures employed to operationalize the conceptual framework presented in chapter 2; and finally, the network analysis procedures used in this study.

Field Sites

The data for this study were gathered from agencies in Schenectady and Onondaga Counties, the sites for two of the three NIMH CSP Demonstration Programs in New York State. Schenectady County is located in the east central part of the State. By New York State standards, it is a small county, covering 209 square miles with a predominantly urban population of 149,946. The city of Schenectady is the hub of the county with a population of 67,972 persons. It is located 15 miles from the State capital of Albany. Onondaga County, in contrast, is both much larger and more populous. It is located in the north central part of the State, 135 miles west of Albany. It encompasses 794 square miles with a predominantly urban population of 463,324. The principal city is Syracuse with a population of 170,105 persons. Both counties have mixed industrial economies. Highlights of the history of local community mental health services and the development of the CSP projects in each community are given below.

Schenectady. The current mental health service program in Schenectady has evolved from a variety of State, county, and local programs. In 1947, the State Department of Mental Hygiene approved a plan to establish a mental ward at Ellis Hospital, and 3 years later this hospital opened the first public outpatient service in the county. Schenectady depended on the Utica Psychiatric Center, (a State mental hospital) 70 miles west of Schenectady, for inpatient treatment. The Utica Psychiatric Center, one of the nation's oldest psychiatric facilities, also maintained an aftercare clinic for discharged patients at a local church near Ellis Hospital.

In 1962, a day care center was established and added to the services at Ellis Hospital. The day care center was intended to provide a true alternative to hospitalization at the State facility in Utica. A small professional staff was provided by Ellis Hospital. In addition, a large number of volunteer workers from the community

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contributed to the success of the day care center. Volunteers came from a variety of women's organizations as well as from a group of individuals who had been previously hospitalized and treated in the inpatient unit. These same volunteers were also responsible for developing community residences for the mentally ill, two of which (Dominion House and Jones Home) were still functioning when the data for this study were collected (spring 1980).

In 1970, the Carver Mental Health Clinic, a satellite service operated out of Ellis Hospital, was created concurrently with the Carver Health Center. The Carver Center was a "war on poverty" effort and was intended to make health services available to residents of poverty areas within Schenectady. The Carver Center and Clinic enjoyed close collaboration with professional staff at Ellis Hospital and attempted to bring both health and mental health services to a population previously without access to such services.

In 1972, the Capital District Psychiatric Center (CDPC) was opened in Albany by the New York State Department of Mental Hygiene. CDPC was to replace the Utica Psychiatric Center as the facility providing inpatient care for Schenectady and several adjacent counties. At this time the deinstitutionalization program in New York State was in full swing, and CDPC was mandated to develop a full range of psychiatric services for local residents. CDPC encouraged the provision of a variety of services to local residents by offering personnel, funds, and administrative expertise to existing agencies and by helping in the creation of new agencies. Halfway houses, sheltered housing, cooperative apartments, geriatric day treatment and referral services, and sheltered workshops were among the programs supported and/or created during the period from 1974 to 1977. In addition, a formal Shared Services agreement between the State, Ellis Hospital, and the Schenectady County Mental Health Department had been established to plan and coordinate the local mental health services program.

In 1977, NIMH selected the Schenectady Shared Services program as one of three CSP demonstration projects in New York State. With its collaborative agreements among a variety of community agencies and its history of providing a wide range of services in the community to chronic patients, the Schenectady program had many of the resources needed to mount a Community Support System demonstration program.

Although many of the mental health agencies in Schenectady participated, in one way or another, in programs initiated or sponsored by Shared Services, nine agencies were identified as the core agencies in the local CSP effort (exhibit 3-1). These component agencies included a geriatric day center (Adult Day Center), a social club (Cara Club), sheltered housing (CDPC Halfway House), a sheltered workshop (CDPC), two inpatient units (Ellis Hospital and CDPC Unit L), and three outpatient clinics (Ellis Hospital, CDPC-Franklin Street, and Carver Mental Health Center).

These core agencies not only developed formal agreements among themselves but initiated close working relationships with other community agencies. Schenectady residents who were inpatients at Utica Psychiatric Center, and who could be moved, entered the Shared Services Program and were assigned case managers. New clients entered the program through intake at the outpatient clinic sites and through admission

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Exhibit 3-1. Schenectady CSP agencies

Adult Day Center	CDPC Sheltered Workshops
Cara Club	CDPC Outpatient (Franklin Street)
Carver Mental Health Center	Ellis Hospital Inpatient Service
CDPC Inpatient Unit "L"	Ellis Hospital Outpatient Service
CDPC Halfway/Case Management	

to the Ellis psychiatric inpatient unit. Crisis services were available at the Ellis Hospital inpatient unit and at the CDPC halfway house. Psychosocial rehabilitation and supportive employment were available at the Cara Club, Adult Day Center, and Sheltered Workshop. Medical care was provided at the Ellis Hospital Outpatient Clinic, and most programs provided emergency medical and psychiatric care. In addition, collaborative arrangements with other agencies in the community provided clients with referrals to a full range of social, medical, residential, and other support services.

Syracuse. As in Schenectady, the history of mental health services in Onondaga County and the City of Syracuse is dominated by the role of New York State in the provision of services. Prior to 1973, the city of Syracuse and Onondaga County were served by two State institutions: Marcy Psychiatric Center, a large and traditional State mental hospital located in a rural setting 60 miles east of Syracuse, and the Syracuse Psychiatric Hospital, a small inpatient facility located in the center of the city adjacent to a university medical complex.

Established in the 1930s as an inpatient teaching facility, Syracuse Psychiatric Hospital was reorganized in 1966 into a 45-bed acute treatment setting and a non-Federally funded comprehensive community mental health center. This initial reorganization was, in part, a result of the recognition of the fact that little comprehensive community-wide planning existed in the county or city. In fact, The Report of the Community Problems Study Committee, published in 1967 by the United Community Chest and Council, indicated that the lack of coordinated community-wide planning in Onondaga County was the number one problem in the field of mental health services.

The reorganization of Syracuse Psychiatric Hospital resulted in the establishment of three geographic treatment teams, each responsible for the delivery of a range of services to their respective sectors of the city and county. Each team was responsible for meeting the comprehensive service needs of their patients including inpatient, day treatment, outpatient, and aftercare. Any patient who did not respond to treatment was transferred to the continuous care facility at Marcy.

In 1973, the Syracuse Psychiatric Hospital was closed, and its functions were assumed by the Richard H. Hutchings Psychiatric Center (HPC), one of the new community-oriented mental hospitals created by the New York State Department of Mental Hygiene.

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From its inception, HPC has provided a comprehensive range of mental health services to the moderate and severely mentally ill in Onondaga and several adjacent counties. In addition to the inpatient, day care, outpatient, and aftercare services already mentioned, a variety of other services were initiated. These included outreach centers in some neighborhoods, case management teams for chronic patients, an emergency house to divert admissions for individuals experiencing housing crises, a comprehensive rehabilitation department, a forensic unit, and a geriatric service. In conjunction with a variety of other mental health-related organizations in the city, a diverse array of services were available at the time of data collection for this study (spring 1981).

From 1973 to 1977, HPC also participated in a patient transfer program with Marcy Psychiatric Center. The purpose was to transfer to HPC and then to other community facilities a group of patients who were originally admitted to the Utica facility from Onondaga County. In 1977, as part of the statewide deinstitutionalization movement, the New York State Office of Mental Health generated a 5-year plan calling for the intensive rehabilitation and appropriate community placement of long-term residents of State institutions. HPC was selected as one of the State psychiatric centers that had the service capability and community resources to receive these long-hospitalized individuals. Thus, Hutchings was faced with the problem of building a system of services not only for current community residents but also for those chronic patients being transferred from the Marcy Psychiatric Center.

In 1977, HPC became the core service agency for one of the three CSP demonstration programs in New York State. The Director of Rehabilitation Services at HPC assumed the position as director of the CSP Project. In line with the goal of the CSP to provide rehabilitation and support services for individuals in the community, the rehabilitation units took the lead in proposing the substance of the CSP in Syracuse. In addition, the decision was made to select the patients who were to be initially returned from Marcy Psychiatric Center as the target group for the demonstration project. In all, 83 long-hospitalized individuals (average age 59) who were originally from the Syracuse area were selected. The goal was to return these patients to the community and assess their progress from 1977 through 1978. Initially, then, the focus of the CSP in Syracuse was quite narrow and centered around this group of chronic patients. Shortly after its inception, the CSP expanded its activities to include younger (under age 30) in-and-out or chronic repeater clients who were forming a rapidly growing component of the HPC caseload (Sheets et al. 1982).

Twelve agencies or units are part of the CSP program in Syracuse; four of these are units at HPC (see exhibit 3-2). The four HPC units are primarily concerned with rehabilitation services and function as the core of the CSP. Evaluation and training, psychosocial rehabilitation, case management, and outpatient family services are provided by these units. The non-HPC agencies collaborate with the HPC units and are thus part of the CSP as well. Transitional Living Services provides residential and followup services to the target population. The Consolidated Industries Sheltered Workshop provides vocational training, while the Clubhouse provides psychosocial rehabilitation. The Post Institutional Services program of the Department of Social Services is composed of caseworkers who work exclusively with mental health clientele

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Exhibit 3-2. Syracuse CSP agencies

Campus Learning Center (HPC)

Rehabilitation Outpatient and Family Care (HPC)

Expediter Services (HPC)

Sunrise/Parkside (HPC)

Transitional Living Services, Inc.

Consolidated Industries, Inc. - Sheltered Workshop

Consolidated Industries, Inc. - Clubhouse

County Department of Social Services - Post Institutional Services Program

County Department of Mental Health - Central Administration

County Department of Mental Health - Community Evaluation Team

County Department of Mental Health - Community Support System Coordination

New York State Office of Vocational Rehabilitation

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and serve as liaisons between Hutchings and the Onondaga County Department of Social Services. The three units of the Department of Mental Health provide administrative services, planning, evaluation, and monitoring for the local mental health services. Finally, the State Office of Vocational Rehabilitation provides administrative support for the program. The role each of these plays in the program is determined at frequent multiagency service planning and review meetings at HPC's Campus Learning Center.

Bounding the CSS Networks

The first decision that confronts any investigator seeking to study interorganizational relationships is specifying the focal system for analysis (Morrissey 1982b). The issue is to determine criteria for inclusion or exclusion of community organizations from the study universe. While at first this might seem a rather straightforward task, in practice a number of complexities arise. The logic of interorganizational systems analysis requires enumeration of all organizations that participate in or influence the flow of resources in a given action arena, whether it is the corporate banking structure of a community, a manpower-training program, or a community mental health system. The task is to gather information on the relationships among these organizations according to the conceptual framework presented in chapter 2. Clearly, if irrelevant organizations are included in the study universe, the burdens of data collection and analysis will be excessive on both

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respondents and the research staff. Moreover, if the study universe is specified so broadly that marginally relevant agencies are included, then opportunities to demonstrate that the interagency network constitutes a single, highly developed system may well be undermined. The counterpoint error is to inadvertently exclude one or more agencies that play a key role in the interorganizational system. In this case, information about the structure and processes of resource flows will be incomplete, and the investigator runs the risk of drawing inferences and recommendations that are unduly trivial or misleading.

Laumann, Galaskiewicz, and Marsden (1978), in a review of the research literature, found that inclusion rules have for the most part been only implicitly stated in published reports. Most investigators seem to rely on a functional and/or geographic delimitation of a relevant population or system of organizations. The first criterion serves to restrict the set of organizations to those that are functionally interdependent or those that share a common or collective goal. The second criterion uses the geographical community to define system or network boundaries. Even within these broad limits, problems may arise, especially regarding extralocal agencies that, while not present in the community, may exert considerable influence as a result of their control over resource inputs to the local system.

In practice, the ease with which a system is bounded depends on prior familiarity with the agencies and actors in the local community. In those cases where a small number of agencies are known to be the key actors in the arena, system specification can proceed fairly easily. In other situations, where the investigator is less familiar with the community, exploratory fieldwork and interviews with key informants can help to bound the system.

In the present study, the focal network of interest consisted of those agencies in each community that provided one or more of the 10 CSS service components identified in NIMH guidelines. Although the data were gathered as part of separate projects, similar procedures were employed to identify the network of CSS agencies in each community. In Schenectady, a list of 45 agencies was generated by Townsend (1980) in his capacity as the director of the Shared Services Program, which served as the CSP core service agency. This list was subsequently corroborated by the Director of the Human Services Planning Council to ensure that the agencies selected were the most important service providers and planning/administrative agencies involved in the provision of services to the adult mentally ill in the county. This list included the 9 component units of the Shared Services Program and 36 other agencies representing the major mental health and social service agencies in Schenectady.

In Syracuse, the relevant network of CSS agencies was identified in consultation with the Director of the Rehabiliation Department at Hutchings Psychiatric Center which served as the CSP core service agency. The Human Services Directory prepared by the local United Way agency was also used to identify agencies in the Syracuse metropolitan area that served the chronically mentally ill. From these sources, a list of 69 agencies or organizational subcomponents was identified. These agencies included the 12 CSP programs previously identified, 23 distinct functional units associated with the Hutchings Psychiatric Center, and 34 other agencies representing the major mental

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health, social services, and rehabilitation agencies (both direct service and planning/ administration) in the metropolitan area. Each major subunit of large multicomponent organizations was treated as if it were a separate organizational entity for purposes of data collection and analysis. The final list of agencies for Syracuse and Schenectady is presented in exhibits 3-3 and 3-4.

The boundaries drawn for each community to encompass relevant network actors were based on the functions served by the various organizations vis-a-vis the adult mentally ill in each community. As mentioned previously, there are no standards by which the accuracy of this boundary-drawing criterion can be assessed. It is conceivable that different criteria could result in different actors being included and that the subsequent analyses could be affected. This perplexing, and perhaps undesirable, problem faces all network analysts, and it must be acknowledged as a potential limitation of these types of studies. In the present case, the fact that the lists were compiled by persons familiar with each community and subsequently reviewed by other knowledgeable actors was taken as an indicator of the utility of the selection process, if not its objective validity.[1]

Data Collection

Once the members of the CSS networks in each community were identified, the next step in the research process was to select the key informant or boundary spanner (Aldrich and Herker 1977) in each organization who was most knowledgeable about the agency's relations with other organizations in the network. Here again, the key informants were identified in consultation with the staff of the CSP core service agencies. In most instances, the informant was an agency or subunit program director or the agency staff person who served as a liaison with other community organizations.

Interviews were conducted with the key informants using a structured questionnaire to obtain information about the agency and its relationships with other organizations in the CSS network. Each interview lasted about 1.5 hours; when no single person was familiar with the issues of concern, two or more informants participated in the interview. Data collection in Schenectady was completed in a 1-month period in early 1980. In Syracuse, the information was obtained over a 2-month period in early 1981.

The interview schedules developed for both Syracuse and Schenectady had a common source in the work of Van de Ven and his colleagues (Van de Ven and Walker 1978; Van de Ven et al. 1979; Van de Ven and Ferry 1980). The Van de Ven survey

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[1] As indicated in chapter 2 as part of the discussion on situational factors, the Van de Ven and Ferry framework focuses primarily on local-level actors to the neglect of important extra-community actors such as Federal funding and regulatory agencies. In this sense, the procedures employed in this study do a reasonably good job of tapping only the horizontal or local community dimensions of CSS networks. The implications of this limitation are discussed in the final chapter.

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Exhibit 3-3. Syracuse CSS agency network

Benjamin Rush (private psychiatric hospital)

Catholic Charities (senior citizens program, neighborhood center)

Child and Family Services (counseling)

Community General Hospital (inpatient, outpatient, emergency care)

Community Health Information and Planning Service

Contact (emergency counseling, workshops)

Crouse Irving Memorial Hospital - Emergency Psychiatric Unit
Crouse Irving Memorial Hospital - Alcohol/Drug Unit

Health Consumers Group (advocacy)

Home Aides of Central New York

HPC Unit I - Inpatient
HPC Unit I - Resource
HPC Unit I - Outreach (South Avenue)

HPC Team E - Inpatient
HPC Team E - Day Care
HPC Team E - Outreach (Irving Avenue)
HPC Team E - Outreach (Camillus/ Radisson)

HPC Unit North - Inpatient
HPC Unit North - Day Treatment
HPC Unit North - Outreach (Eastwood)
HPC Unit North - Outreach (DeWitt)
HPC Unit North - Outreach (North Syracuse)
HPC Unit North - Case Managers

HPC Forensic Unit

HPC Special Evaluation Services

HPC Emergency House

HPC Alternate Housing

HPC Education and Training

HPC Mobile Recreation Team

HPC Proprietary Home Team

HPC Geriatrics - Inpatient
HPC Geriatrics - Day Treatment
HPC Geriatrics - Evaluation Team

Ida Benderson Center (recreation and information education)

Jewish Family Services (counseling, adoption)

Mental Health Association (mental health and education, advocacy)

Mental Health Information Service (information and referral)

Mental Patients Alliance (advocacy)

New York State Office of Mental Health (regional office)

Onondaga County Jail
Onondaga Pastoral Counseling Center

Oxford Street Inn

Rescue Mission Alliance (emergency shelter, alcohol treatment)

St. Joseph's Hospital (emergency outpatient clinic)

Salvation Army - Emergency Shelter

Sequim Community Services (referral, coordination services)

Syracuse Brick House (alcohol rehabilitation residence)
Syracuse Community Health Center (outpatient medical, dental, and mental health)

United States Social Security Administration

United Way

Unity Kitchen (meals and shelter)

Upstate Medical Center - Psychiatric Inpatient
Upstate Medical Center - Psychiatric Outpatient

Volunteer Center (information and referral, volunteer placement)

YMCA - Shelter Services
YMCA - Residence

HPC = Hutchings Psychiatric Center

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Exhibit 3-4. Schenectady CSS agency network

Association for Retarded Children

Carver Mental Health Center, Inc.

Catholic Family and Community Services (counseling)

City Mission (sheltered workshop)

City Police Court

Council on Alcoholism, Inc. (counseling)

County Jail

County Mental Health Board

County Probation Department

Department of Social Services (administration)

Dominion Adult Residence

Dow Adult Residence

Eleanor Roosevelt Developmental Center (supportive and residential services for mentally retarded)

Emmanuel Adult Residence

Family and Children Services (counseling, outreach)

Family Court

Human Services Planning Council

INFOLINE (information and referral)

Jones Adult Residence

Law, Order and Justice (advocacy services)

LIV Corp, Adult Residence

New York Association for Learning Disabled (therapy, family counseling, and school consultation)

New York State Office of Aging (information and referral, advocacy, outreach)

New York State Office of Mental Health (regional office)

New York State Office of Vocational Rehabilitation Special Mental Health Training Project (counseling, medical exams, (sheltered workshop)

People's Advisory (advocacy services)

Salvation Army (counseling, emergency food and clothing)

Schenectady City Department of Health (dental and health screening, dietary instruction, home health care)

Schenectady Community Action Program (advocacy, group homes, education)

Schenectady Employment and Training (training, employment program)

Schenectady Inner-City Ministry (emergency food, housing, supervised children's program)

United Way

Visiting Nurses Association

Washington Irving Adult Education (English as a second language, high school equivalency classes)

YMCA (health education, housing, food services)

YWCA (health programs, education, youth programs)

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questionnaire reflects the state of the art in interorganizational research and has been used by other investigators in a variety of program contexts (Morrissey et al. 1982). This questionnaire was adapted for use in a mental health services context by Townsend (1980) as part of the Schenectady CSP survey. Subsequently, the Syracuse CSP survey was modeled on this instrument plus several items from the original Van de Ven instruments. Both the Schenectady and Syracuse survey instruments requested information from each respondent on: (1) organizational identification (name of agency; services provided; age, source, and stability of funding; number of employees; and clients served); (2) relations with other organizations (various dimensions of the agency's linkages with other agencies); and (3) perceptions of service delivery problems in the community (comprehensiveness of care, continuity and adequency of care, and coordination of services).

The core of both questionnaires focused on each agency's relationships with other organizations. Each respondent was asked to designate five agencies (from the lists of network members described above) with which his/her organization maintained working relationships during the preceeding 6 months. While this convention served to suppress the full range of linkages that might exist among the agencies in the two communities, it did yield pertinent information about the principal linkages for each agency. The use of lists from which agencies can choose the other agencies with which they have relations has the advantage of making it easier to collect data about the intensity of relations in small, well-bounded networks (Alba 1982). The 6-month timeframe was specified for two reasons: (1) to ensure that the relations identified were current or ongoing relationships, and (2) to provide a common reference period for all respondents. These procedures conform to the typical data collection methods used in the interorganizational research field (Van de Ven and Ferry 1980; Morrissey et al. 1982).

Once the five agencies were designated, the respondent was asked a series of questions designed to measure the concepts associated with the theoretical framework presented in chapter 2. The final section of the questionnaire focused on perceptions of service delivery problems in each community. Responses to these questions were used to determine the scope of coordination and system development problems in the CSS network of each community and the perceived seriousness of each problem. The pertinent sections of each questionnaire are reproduced in appendix 1.

Data Analysis Procedures

As has been noted by a number of analysts (Lin 1976; Burt 1980; Alba 1982), the creation, manipulation, management, and analysis of network data is a complex process. This section describes the procedures employed in this study, starting with the computer procedures used to prepare and analyze the data. Structural equivalence, the primary network level measure used, is discussed next. This is followed by a description of the way a relation-level data set was created from questionnaire responses. This transformed data set was used to derive measures of the key concepts associated with the theoretical framework presented in chapter 2.

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Data Preparation and Analysis. The first task was to reformat the data for use by computer programs designed to perform the network analysis (Alba 1982; Knoke and Kuklinski 1982). This task was not purely technical. The analyst had to decide which of the many possible types of relations among organizations were of primary interest and which of these would be defined as constituting a link among organizations. This decision had to be made on theoretical grounds. It was of critical importance, since all subsequent network-level analyses were based on this initial definition of what sort of relationship constitutes a link.

In this study, the resources exchanged among service agencies constituted the defining characteristic of an interorganizational relationship. That is, the presence or absence of a relationship between a pair of agencies was measured by the presence or absence of a resource exchange between those agencies. More particularly, this study focused on the presence or absence of three types of resource exchange among agencies: information, clients, and funds.

The computer program used in this study, STRUCTURE, was written by Ronald S. Burt (PISA 1977). The program is well documented, has been widely used, and has a variety of applications (Burt 1977a; Burt 1977b; Burt 1978a; Burt 1980; Burt 1982; Knoke and Kuklinski 1982; Alba 1982). No attempt will be made here to discuss the mechanics of the program, except to say that it is quite flexible and provides the user with a number of options concerning the types of network analysis to be performed. Details concerning the required format for data input to the program are described in appendix 2.

Although STRUCTURE yields a variety of types of output, only two of these are discussed here. The first is a set of role distances (Burt 1977a; Burt 1977b; Burt 1978a). By role distance, Burt (1977a, p. 110) means

> . . . the discrepancy between corresponding relations in role-sets. . . the role distance between the pattern of relations defining the status occupied by actor j and that defining the status occupied by actor i is a function of the differences in their corresponding relations to and from each actor in the system.

The STRUCTURE program takes the input data matrices and compares the pattern of relationships each agency has with other agencies. Those agencies that have relations with the same other agencies would have 0 role distance between them. That is, the role distance between Catholic Charities and Transitional Living Services in Syracuse would be 0 if both these agencies have relationships with exactly the same other agencies in the network. The role distance between the two would be greater than 0 if their pattern of relations was not exactly the same; indeed, the more dissimilar their pattern of relations, the greater the role distance between them.

In this fashion, each agency received a role distance score relative to each of the other agencies in the community. In Syracuse, for example, each agency received 68 role distance scores that represented its role distance from each of the other agencies

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in the community. These scores were part of the output generated by STRUCTURE. The program then used the information contained in these role distances in a hierarchial cluster analysis to group agencies together. Agencies were grouped or clustered together when they had identical or very similar patterns of role relations with others. The groups or clusters of organizations in each community were groups in the sense that their incumbents had identical or similar patterns of relations to others in the network. Such clusters were the starting point for most of the analyses in this study and ultimately led to a map of the interorganizational network in each community .

Structural Equivalence. One of the primary goals of network analysis is to assess the extent and type of social differentiation within a network of actors. As a means of accomplishing this goal, network analytic techniques generally partition the total number of actors in the network into subgroups. Relative to all the actors in the network, the members within each network subgroup are more like one another than they are like those outside their subgroup. The critical consideration is what criteria are used to partition the total network into subgroups.

Network analysis has two distinct criteria for aggregating actors into subgroups. One type of subgroup, the clique, is composed of actors with intense, mutual relations. Actors are aggrated into a clique to the extent that they are directly connected by cohesive bonds (Alba and Moore 1978; Burt 1978b; Knoke and Kuklinski 1982). A second type of subgroup, the jointly occupied position or status/role-set, is composed of actors who stand in common orientation to a larger system in the sense of having similar relations with actors in the system. Actors are aggregated into a jointly occupied position to the extent that they are structurally equivalent with one another (Burt 1976; Burt 1978b; Knoke and Kuklinski 1982).

Structural equivalence refers to "the extent to which specific relational patterns occur repeatedly across multiple actors" (Burt 1980, p. 101). Actors are aggregated into a jointly occupied position to the extent that they have a common set of linkages to the other actors in the system (Lorrain and White 1971; White et al. 1976; Sailer 1978). It is important to note, as Knoke and Kuklinski (1982) point out, that this criterion does not require the actors in each position to have direct ties with each other. Thus, actors are grouped together not because they interact with one another (although they may) but because they have similar types of relations with similar other actors. The role distances described above are critical to this grouping process. The relationship between role distances and structural equivalence is described in appendix 2.

Burt (1976, p. 209) argues that,

> relative to subgroups based on cohesion, those based on structural equivalence: (1) include a broader range of types of subgroups, (2) extend the scope of types of subgroups in which homogeneity of attitudes and behavior can be expected, (3) have a more consistent meaning as operationalized by available computer algorithms, (4) can be subjected to statistical tests of goodness-of-fit, (5) are accordingly more robust over random error in relations, and (6) provide a basis for sampling population networks in large systems.

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This criterion was adapted for the present study because of the advantages of analyzing subgroups in terms of structural equivalence.

Once a network is partitioned into clusters of actors according to the structural equivalence criterion, one can then inquire about the meaning and importance of these clusters. Burt (1980) argues that a group of structurally equivalent actors can be considered to constitute a position in the system. He further argues (Burt 1980, p. 101) that such a position can be viewed as a status in the system: "A status is the set of rights and obligations involved in the performance of the pattern of role relations defining a significant position." Thus, by identifying clusters of structurally equivalent actors one can identify those groups of actors that have common rights and responsibilities within the larger system.

Such a partitioning of the network is informative in a variety of ways. First of all, the composition of the clusters is of interest. This involves scrutinizing the characteristics of the agencies that jointly occupy a position in the network. Do all housing agencies in the network, for example, occupy the same positions, or do the various agencies of this type occupy different positions throughout the network? If such agencies occupy different positions in the network, this would mean that they have relations with different other agencies and that, by implication, all housing agencies do not have the same responsibilities in the network. Further, one might look at the source of funding or the types of clients served by each agency in a cluster to get an idea of whether agencies with a particular source of funding or that serve a particular kind of client also tend to have relationships with similar other agencies.

A second important result of partitioning the network into clusters of agencies is that it enables one to explore the existence and frequency of relations between clusters. The procedure by which this is done is called blockmodeling, a relatively new analytic technique (White et al. 1976; Boorman and White 1976). This procedure defines the role-set for each of the clusters in the network, i.e., the set of other clusters that a particular cluster has relations with in the network. It also permits the analyst to discern the holes in the network by identifying those clusters that have no relations with other clusters. The manner in which this is done is delineated in appendix 2.

Blockmodeling was an important procedure in this study for at least three reasons. First, the procedure allows one to look at the pattern of relations between and within clusters across multiple networks of relations. That is, one can compute the density of relations simultaneously in more than one network. In this study, the clusters of agencies were derived in an analysis of information, client, and fund networks. Thus, not only were the agencies in each cluster structurally equivalent across information, client, and fund networks but also such clusters had relations of these types with one another at a specific frequency. The procedure also revealed those clusters that had no relations of these types with one another. In this way the extent to which multiplex (i.e., relations between agencies in which more than one resource is exchanged) relations existed between the positions in the network could be assessed. The overall configuration of relations in the network can thus be discussed (Boorman and White 1976).

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Second, the blockmodeling procedure allows one to label all of the positions in the network in terms of their relations with one another. By inspecting the density of relations from each of the positions to the others, one can discern which of the clusters initiates relations with each of the other clusters, and which clusters have no relations with the other clusters. Burt (1976; 1978a) suggests that each position be characterized in the following way. A primary position is one in which the incumbents are selected for interaction quite frequently by others in the network but who initiate interaction only with other primary position incumbents; an isolate position is one in which the incumbents seldom initiate interaction with others and seldom have interactions initiated with them by occupants of other positions; a broker position contains agencies that are selected for interaction quite frequently by incumbents of other positions in the network and also frequently initiate relations with incumbents of other positions; and finally, a sycophant position can be defined as one in which the incumbents frequently initiate interaction with incumbents of other positions (particularly primary positions) but are seldom selected for relations by members of other positions. This procedure at least begins to enable one to explore the hierarchy of power and authority in a network (Burt 1978a; Alba 1982) and is compatible with both general sociological views of power (Blau 1964) and interorganizational theories of power (Pfeffer and Salancik 1978; Van de Ven and Ferry 1980).

A third way in which blockmodeling has been important in this study is that it can provide a tool for exploring the extent to which a network of service agencies in a community constitutes a system. Two of the primary postulates of systems theory are that any system is composed of various parts that serve some function for the system as a whole, and these parts are interrelated such that some coordination of the parts is possible. In a study of Early Childhood Development Agencies in Texas, Van de Ven, Walker, and Liston (1979) used a network analysis computer program to identify clusters of structurally equivalent agencies and then to blockmodel the network so that the relations among these clusters could be studied. While their particular findings are not discussed here, the logic of their analysis is important. A cluster analysis of the network identifies a number of clusters of structurally equivalent agencies. If one then looks at the reasons for each incumbent of each position to interact with incumbents of the other clusters, one might be able to identify clusters that engage in relations of primarily one type. Thus, Van de Ven, Walker, and Liston (1979) identified direct-service-to-clients clusters, coordination-and-planning clusters, and so on. Using the systems imagery, they then argued that these clusters represented the various parts of a system and that the reasons incumbent agencies gave for their interactions with other clusters might represent the primary function each cluster served for the larger service agency system.

To the extent that a system exists, the parts that serve a particular function for the system ought to be related to other parts of the system. If one finds that the various parts of the network are virtually unrelated, then one might conclude that no system exists. Since blockmodeling allows one to assess the existence and pattern of relations among clusters of agencies, it provides a means for investigating whether one requirement for the existence of a system is present in networks of service agencies.

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Multidimensional scaling (MDS) procedures were also employed as an aid to the depiction of intercluster relationships. MDS is a mathematical technique for arraying data points (here the individual clusters) in a spatial configuration or map (Kruskal and Wish 1978). Graphic depictions of the overall CSS networks allow for a more intuitive interpretation of the underlying structure and significance of the system of relationships in each community. Further details of the use of this technique can be found in appendix 2.

Relation Level Data Set. One further data manipulation was necessary before the analyses presented in the following chapters could be undertaken. It will be recalled that the study questionnaires solicited information from all respondents regarding their agency's relationships with five other agencies in the community (see appendix 1). Data of this form can be configured in two ways for purposes of subsequent analysis: into an agency-level or a relation-level format. An example will clarify each of these configurations. Suppose an analyst is interested in the degree of goal consensus among the agencies in the community. One approach is to assign a single consensus score to each agency by computing the average score for its five relationships. This represents an agency-level data set. The other approach is to create a relation-level data set by focusing attention on each relationship, giving five consensus scores for each agency. The former procedure would produce 69 consensus scores in Syracuse and 45 in Schenectady (one score for each agency in each community), while the latter would produce 345 consensus scores in Syracuse (69 agencies X 5 relationships) and 225 consensus scores in Schenectady (45 agencies X 5 relationships).

This study employed the relation-level approach for two reasons. One limitation of the agency-level summary score approach is that it ignores the fact that an agency's relationships with multiple others may differ considerably from one another. It is impossible to capture this diversity by computing a single score to represent multiple relationships (Van de Ven and Ferry 1980; Morrissey et al. 1982; Whetten 1982). In contrast, by retaining a score for each of the relationships an agency has, as in the relation-level approach, the uniqueness of each relationship is preserved.

The second advantage of relation-level data becomes clear in the context of the clustering and data analysis procedures that were employed. Cluster analysis techniques were used to assign agencies to groups when their information, client, and funding relationships were structurally equivalent to one another. The aim was to find out what difference this structural grouping made on other attributes such as the centralization and formalization of relationships or the roles each cluster served in the overall network. Had an agency-level data base been used, the information available to assess the impact of structural groupings would be limited to a single observation per agency. A cluster with three agency members, for example, would have only three formalization or centralization scores. With such a small N in each cluster, it would be difficult to detect any differences between clusters in the variables of interest. A focus on relation-level data avoids this problem by using information on all of the relationships for each agency rather than single agency scores. If there are three agencies in a cluster, for example, this procedure would yield 15 formalization scores for that cluster. In effect, the 345 and 225 relationships in each community were partitioned into clusters rather than the 69 and 45 agency scores. In this way, analysis

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of variance procedures could be utilized more effectively since more cases were available for analysis in each cluster.

It should not be concluded, however, that relation-level data were employed only to facilitate statistical analyses. It will be recalled that the initial network analysis was performed on data that indicated the presence or absence of a relationship between the agency and others in the community. The agencies were then clustered into structurally equivalent groups. Thus, agencies were clustered together precisely because of common patterns of relationships with others. Given the initial focus on relationships, it was appropriate to maintain this focus in the later analyses.

Summary

This chapter has presented an overview of the data collection and analysis procedures employed in the study of the systems aspects of CSP projects in Syracuse and Schenectady, New York. Both sites were part of the initial round of NIMH CSP Demonstration Projects that were initiated in 1978. The data for this study were gathered as part of separate research efforts in 1980-81 when each demonstration project had been operational for approximately 2 years. Survey instruments developed by Van de Ven and Ferry (1980) provided a common data collection framework for each study. Using key informant interviews, the CSS agency network in each community was identified, and information about the content and form of each agency's relationships with five other agencies was obtained. The resultant data set consisted of 69 agencies in Syracuse (with 345 dyadic relationships) and 45 agencies in Schenectady (with 225 dyadic relationships). In each community, the CSS network consisted of the major mental health, social welfare, and planning agencies involved in service delivery to the chronically mentally ill.

Several of the network analysis procedures employed in this study were also introduced and described in a schematic fashion. The central analytical concept in these analyses is structural equivalence, which is used to identify the similarities of information, client, and funding flows among clusters of agencies. The hierarchial clustering, blockmodeling, and multidimensional scaling procedures used in the depiction of intracluster and intercluster relationships were also discussed.

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4

SITUATIONAL DIMENSIONS OF THE CSS NETWORKS

In this chapter, a set of variables critical for the emergence and maintenance of an interorganizational system are assessed. These variables have been termed situational factors by Van de Ven (1976) and Van de Ven and Ferry (1980) and emerged from their attempt to measure those characteristics of agencies and their relations that might lead to ongoing interorganizational relations. The emphasis is on the level of each of these situational factors and what these scores might suggest about the intensity and form of interagency relations in both Syracuse and Schenectady. If these situational factors are, as Van de Ven and Ferry (1980) suggest, preconditions for stable, ongoing interorganizational relations, then they may facilitate or inhibit the emergence and maintenance of an interorganizational system in each community.

The extent to which the networks in each community can be described as a system is addressed in later chapters. Here the emphasis is on the measurement and analysis of the situational factors themselves and (1) the similarities and differences between Syracuse and Schenectady on each of these situational factors, and (2) the implications of the observed level of these situational factors for the type of network structure that exists in each community.

Intercommunity Comparisons of Situational Factors

Two types of information are of particular interest in this chapter. The first, the scores on each of the situational factors in both communities, reveals the overall degree of resource dependence, for example, in each network. The second type of analysis involves a comparison between communities on each of the situational factors. Is there, for example, a greater degree of domain similarity in Syracuse than in Schenectady?

Table 4-1 presents both types of information. As explained in chapter 3, each situational factor was measured on a 1 to 5 extent scale, where a value of 1 indicates the factor exists to no extent and a value of 5 indicates it exists to a great extent. The mean score ($\bar{X}$) for network agencies on each situational factor, as well as the standard deviation (SD) and the number of relations (N) upon which these are based, are presented. In addition, those mean differences that attained statistical significance (based on a t-test) are identified by asterisks.

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Table 4-1. A comparison of situational factors in Syracuse and Schenectady

Situational factors	SYRACUSE N	SYRACUSE $\bar{X}$	SYRACUSE SD	SCHENECTADY N	SCHENECTADY $\bar{X}$	SCHENECTADY SD	$\bar{X}$ Diff.
Resource dependence							
You need them	342	3.84	1.15	219	3.71	1.24	.13
They need you	342	3.29	1.26	220	3.71	1.18	-.42**
Domain similarity							
Similar services	337	2.17	1.22	215	2.02	1.20	.15
Similar clients	307	3.30	1.22	200	3.20	1.51	.09
Consensus							
Goal agreement	294	3.51	1.41	210	2.66	.75	.85**
Awareness							
Personal	291	2.49	.51	217	2.59	.65	-.10*
Agency	328	2.55	.63	220	2.84	.44	-.29**
Size							
N of agencies	69	---	---	45	---	---	24

* $p<.05$ ** $p<.001$

The N of relations upon which these comparisons are based constitute the total number of relations for all agencies in each network (allowing, of course, for missing data on each factor). Since the situational factors are conceived as preconditions for the emergence and formation of interorganizational linkages, it is important to consider all the relations that exist among agencies in each network. Thus, our unit of analysis here is the total CSS network represented by the aggregation of all dyadic relations among the agencies in each community.

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Resource Dependence. Table 4-1 indicates that a relatively high degree of resource dependence existed in both communities. In Syracuse, agencies claimed that they needed the agencies with which they interacted more (3.84) than these agencies needed them (3.29). The mean difference of .55 was statistically significant ($p < .001$). Such a perceived imbalance may suggest insecurity on the part of agency administrators; for example, their agency may seem to be in a more vulnerable position than other agencies with which they deal. To the extent that this perception accurately reflected the agency's resource dependence, it indicates that these agencies will be motivated to maintain their interorganizational relations over time. In Schenectady, however, there was no difference at all between an agency's assessment of how much it needed the other agency (3.71) and how much the other agency needed it (3.71). The magnitude of these mean values, however, once again suggests a perceived need to engage in relations.

The more important question was whether the two communities differed on the two resource dependence variables. In terms of the first measure (the extent that agencies perceive themselves as needing the other agency) the answer was no. There was a between-community difference, however, on the second measure (the extent that agencies perceive other agencies as needing them). In Syracuse this value was significantly lower than in Schenectady (3.29 vs. 3.71). This could mean that conditions were even more favorable in Schenectady for the development and maintenance of resource exchange relations.

Inferences regarding the extent of resource dependence in these two communities must be tempered, of course, by the lack of statistical norms or guidelines. That is, when is resource dependence high and when is it low? Currently, there are no empirical or theoretical criteria for answering this question. However, it is difficult to interpret even the lowest value of a resource dependence variable in Table 4-1 (3.29 on a 5-point scale) as reflecting a low degree of resource dependence. This being the case, the findings suggest that one of the key prerequisites for system development in the Van de Ven and Ferry framework was present in each community. To the extent that agencies in each CSS network are highly dependent upon each other, a set of incentives exist for resource sharing and the development of close interagency linkages focused on the care of chronic mental patients.

Domain Similarity. The extent to which interacting agencies provide similar services was quite low in both communities (2.17 in Syracuse and 2.02 in Schenectady). On the other hand, the extent to which interacting agencies served similar clients was much higher (3.30 in Syracuse and 3.20 in Schenectady). The t-tests comparing the scores on each indicator of domain similarity suggested that the between-community difference on these variables were not statistically significant. Thus, in each community relatively little domain similarity existed in terms of services, but a much higher similarity appeared to exist in terms of clients. A t-test of the difference between the means of each of these variables within each community lends further credence to this conclusion. In both Syracuse and Schenectady, there was a significant difference between the extent agencies served similar clients and the extent to which they provided similar services ($p < .001$).

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In general, these results were also favorable for the emergence of interorganizational relationships. The low domain similarity scores for services suggests that there was little overlap or duplication among agencies in the services provided. To the extent that there is a division of labor in these regards, agencies that offer different but complementary services for chronic mental patients would be drawn together in deliberate interorganizational relationships. Moreover, given the relatively high domain similarity score on clients, a further incentive would be present to develop interagency linkages. To the extent that CSS agencies served a similar or overlapping clientele but offered a differentiated array of services, two of the basic preconditions for systemic relationships were present in each community.

Domain Censensus. The degree of domain consensus was much higher in Syracuse than in Schenectady (3.56 vs. 2.66). While it would certainly not be correct to say that no domain consensus existed in Schenectady, it appeared that a higher consensus over goals among interacting agencies existed in Syracuse. The t-test of the differences between the means in each community was highly significant ($p < .001$). Thus, agencies in Syracuse tended to agree much more with their interaction partners about the goals that should be pursued than their counterparts in Schenectady. An inspection of table 4-1 shows that this difference was the largest of all the situational comparisons made.

This finding was the first evidence of a difference in the level of network structure between communities. Other things remaining equal, the higher domain censensus in Syracuse implied that better developed network structure might be found there than in Schenectady.

Awareness. Each community showed a moderate degree of awareness both of personal acquaintances and of the programs and policies of the interacting agencies. As indicated in table 4-1, however, the two communities differed on the awareness factor. The degree to which agency personnel knew one another was greater in Schenectady (2.59) than in Syracuse (2.49), and this difference was statistically significant ($p < .05$). Similarly, agencies in Schenectady (2.84) tended to be more aware of the policies and programs of the agencies they interacted with than those in Syracuse (2.55). This difference was also statistically significant ($p < .001$). Overall, then, there appeared to be a higher degree of awareness, both of personnel and agency programs and goals, in Schenectady than in Syracuse. One possible explanation for this finding is that Schenectady has a much smaller population than Syracuse. As shown below, the size of the CSS network was also much larger in Syracuse. These facts might make familiarity with agency programs and personnel more problematic.

Here is another basis for anticipating a potential difference in the extent of structural elaboration in the two CSS networks. To the extent that interagency contacts are conditioned by high levels of program and personnel awareness, agency representatives will talk about their mutual problems and potential solutions for these problems. As the level of awareness was relatively higher in Schenectady than in Syracuse, the situational opportunities for system development would be expected to vary accordingly.

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Size. The size of the CSS network in Syracuse (N=69) was much larger than in Schenectady (N=45). In and of itself, this difference can affect the levels of structural elaboration and system development that are likely to be detected in each community. As noted in chapter 2, larger networks require more effort and resources to integrate and coordinate as a system of services. In this sense, the size of the network may be viewed as more of an obstacle to system development in Syracuse than in Schenectady.

To a considerable extent, however, this network size differential was somewhat artifactual. It will be recalled from chapter 3 that the functional units of large, multicomponent organizations in each community were disaggregated and treated as if they were separate organizations. Because each subunit was likely to have diverse linkages with different agencies in the community, which would be distorted if the agency was treated as a holistic entity, this practice of disaggregation made good analytic sense. The consequence, however, was that the size of the network would be inflated in those communities that had a disproportionate number of large, multicomponent agencies.

This is precisely what happened in the Syracuse data set. Of the 69 network agencies, 28 were subunits of the Hutchings Psychiatric Center (State mental hospital) and another 4 were subunits of 2 other agencies. Thus, 32 of the 69 agencies (46 percent) were not free-standing organizations. In contrast, for Schenectady only 8 of the 45 agencies (18 percent) were subunits of large, multicomponent organizations. However, despite the difference in network size, the same number of free-standing organizations was included in each network.

Although the organization research literature provides ample evidence that many large, multicomponent agencies are best understood as mini-interorganizational arenas rather than unitary bureaucratic entities (e.g., Lawrence and Lorsch 1967), it is also true that organizational subunits are usually more constrained in their activities than free-standing organizations. The implication of this observation is that there may be a level of interagency coordination in each CSS network that was missed in the data collection and analysis procedures. This would occur primarily among those agencies that were actually subcomponents of large organizations. Nonetheless, disaggregating these organizations yielded analytic insight by documenting the differential patterns of association among functional units that play important roles in the CSS networks.

In general, then, other things remaining equal, the larger network in Syracuse would be expected to present a much more difficult task for structural elaboration and system development than the one in Schenectady.

Implications for Network Intensity

As presented in chapter 2, the Van de Ven and Ferry framework contains two hypotheses that specify relationships between situational factors and the intensity of resource flows within interagency networks. Hypothesis 1 holds that intensity is a function of resource dependence, awareness, willingness to respond to external issues, and consensus. Hypothesis 2 holds that there is a concave (n-shaped) relationship between domain similarity and intensity.

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With regard to the first hypothesis, the level of resource dependence was rather high and roughly equivalent in both communities, but their levels of awareness and concensus were quite different. Goal consensus was found to be significantly higher for Syracuse, while both personal and agency awareness was significantly higher for Schenectady. (No explicit measure of "willingness to respond to external issues" was included in the study.) Although the available measures revealed a mixed pattern, in general, they led to the expectation that both networks should have a moderate to high intensity of resource flows.

The same expectation can be derived from the findings pertinent to the second hypothesis. Here, each community scored rather low on the service measure of domain similarity and rather high on the client measure of this dimension. This pattern appears to be conducive to an interagency division of labor involving distinct but complimentary services and a shared clientele. This pattern is likely to promote a moderate to high intensity of resource flows among agencies in the CSS networks. In neither community was the level of domain similarity extreme enough (either very high or very low) to expect the attenuation of network intensity implied by the concave relationships stipulated in this hypothesis.

Hypothesis 3 holds that the greater the number of agencies in a network, the greater will be the formalization, centralization, and complexity of the network. The need to manage relations among a larger set of actors suggests that these network properties are more likely to be observed if the network is to demonstrate much structure. Assessing the true size of the networks was difficult because the components of multicomponent agencies were treated as distinct for other reasons. Large networks may tend to surppress the intensity of resource flows simply as a function of the number of participating agencies. To the extent that an inverse relationship does exist between size and intensity, lower intensity would be expected in the Syracuse as opposed to the Schenectady network (N = 69 and 45, respectively).

Summary

In summary, a decidedly mixed picture emerged as to the manner in which situational factors influence the intensity of resource flows in each CSS network. Countervailing pressures existed in each community, and no clear-cut predictions could be made. Nonetheless, with the exception of network size, the findings considered in this chapter suggested that there was a great deal of comparability between Schenectady and Syracuse in terms of these situational factors. Moreover, the conditions appeared to be favorable for the emergence of interorganizational systems in both sites.

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5

STRUCTURE AND COORDINATION IN THE CSS NETWORKS

In the previous chapter the focus of concern was on the situational factors or preconditions for interorganizational relationships among the CSS agencies in each community. Here, the analysis is extended to the structural dimensions of the interorganizational linkages that exist among these agencies. The second issue in the research framework is the extent to which interagency transactions are organized into identifiable patterns. The analysis was guided by several of Van de Ven and Ferry's hypotheses concerning the relationships between situational and structural variables. In particular, the extent to which the tendencies and countertendencies detected in the assessment of the situational preconditions in each community influenced the form or structure of the respective CSS networks.

Following the research framework presented in chapter 2, the structure of the CSS network in each community was assessed according to four dimensions: (1) intensity, (2) complexity, (3) formalization, and (4) centralization. Then these dimensions were analyzed in terms of the overall level of managed coordination that existed in each CSS network.

Network Intensity and Complexity

Resource and information flows are the basic defining characteristics of interorganizational relationships (Van de Ven and Ferry 1980, p. 301). The number of resource and information flows among component agencies provides a measure of the intensity of network linkages, while the number of structurally equivalent groups of agencies provides a measure of network complexity. Findings pertinent to both dimensions of network structure are presented below.

Intensity. In this study, analyses of resource flows focused on client referrals and fund transactions among the agencies in each CSS network. Information flows were examined in terms of communications between agencies about these transactions or other aspects of their interorganizational relationships. As described in chapter 3, each agency respondent identified five other agencies with which interorganizational relationships occurred within the 6 months prior to the survey. For each relationship, the respondent also indicated whether the linkage involved client, fund, and/or information transactions.

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The relative frequency of relationships in each CSS network based on one or more of these linkages is displayed in table 5-1. Overall, a total of 339 relationships were identified for the 69 agencies in Syracuse and a total of 216 relationships for the 45 agencies in Schenectady.[1] The distribution by type of linkage indicated that multiplex relationships (i.e., those involving combinations of client, information, or fund transactions) predominated in each network. Such relationships accounted for 88 percent of the linkages in Syracuse (298/339) and 85 percent of the linkages in Schenectady (184/216). Overall, then, these data suggested that the interorganizational relationships in each CSS network were based largely on multiple resource and information transactions.

Table 5-1. Frequency of interorganizational relations by type of linkage in Syracuse and Schenectady CSS networks

	CSS network			
	SYRACUSE		SCHENECTADY	
Type of linkage	N	%	N	%
Clients only	13	3.8	16	7.4
Information only	29	8.6	12	5.6
Funds only	0	0.0	4	1.9
Clients + information	237	69.9	111	51.3
Clients + funds	0	0.0	7	3.2
Information + funds	36	10.6	22	10.2
Clients + information + funds	24	7.1	44	20.4
Total	339	100.0	216	100.0

[1] The number of interorganizational relationships reported in table 5-1 excluded nine relationships in Schenectady and six relationships in Syracuse. These missing linkages involved relationships with agencies not included in the original agency list or agencies that identified fewer than five interaction partners within the agency network.

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Nonetheless, there were some notable differences between networks in the composition of these relationships. Whereas client-information linkages were the most common type in each network, they accounted for 70 percent of the relationships in Syracuse but only 51 percent of the relationships in Schenectady. However, relationships involving all three linkages (clients, information, and funds) occurred three times as often in Schenectady (20 percent) as in Syracuse (7 percent). Moreover, while relationships involving funds flows (either alone or in combination with client and/or information transactions) were relatively infrequent in either community, they occurred twice as often in Schenectady (36 percent) as in Syracuse (18 percent). Each of these percentage differences was statistically significant.[2]

These results indicated that the relationships between CSS agencies in Syracuse consisted primarily of client and information transactions with little lateral flow of funds. In Schenectady, the relationships between CSS agencies revealed a more mixed pattern. Client-information linkages predominated, but proportionately more of the relationships involved funding flows and all three units of exchange. Relatively speaking, then, these differences suggested that the intensity of resource flows among CSS agencies was greater in Schenectady than in Syracuse. Intensity here refers to the number of different elements involved in an interorganizational relationship. To the extent that agencies are linked by multiple resource and information flows, they have a greater degree of interdependency in the pursuit of self-interest and collective goals.

In absolute terms, however, each network had a surprisingly low level of fund transactions. Of the three elements considered in this study (information, clients, and funds), fund transactions are perhaps the most consequential. Client and information exchanges often occur on a perfunctory basis, whereas most fund transactions imply some sort of negotiated or contractual agreement between the parties involved. Further, in many human service arenas there is a surfeit of clients, and their interagency flow does not always create fateful contingencies or obligations between sending and receiving agencies. Information flow is perhaps the least restrictive commodity in the interagency service arena. Moreover, the close correspondence in the frequency of client and information flows in the two CSS networks suggests that they often co-occurred, and that much of the information flow was client related as opposed to more strategic organizational considerations.

The low level of fund transfers between CSS agencies also implied that each agency had access to categorical funding from State, Federal, or local sources. To the extent that many agencies can secure needed financing from sources other than organizations in the CSS network, then the overall level of interdependency in the network is diminished (Aiken et al. 1975). It should also be noted (as described in

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[2] Using a difference of proportions test, the 13 percent differential involving all three linkages yields a Z score of 1.41 ($p<.08$), and the 18 percent differential involving fund flows yields a Z score of 2.34 ($p<.01$).

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chapter 1) that the CSP Demonstration Projects did not receive funds from NIMH to support the direct client services identified as core components of the CSS network. The modest amount of NIMH funding was earmarked for the administrative costs of the CSP core service agency. Consequently, unlike the Community Mental Health Centers and other Federal seed-money programs, the core service agency could not use massive amounts of extra-local funding to induce participation in the CSS network (Tessler and Goldman 1982). The implication of this situation is that the intensity of resource flows in the Schenectady and Syracuse CSS networks may not have been extensive enough to support the formalized and elaborated structure envisioned in the NIMH guidelines.

To summarize the above discussion, client and information flows predominated in each CSS network but, relatively speaking, the Schenectady network appeared to have a greater degree of intensity as evidenced by the more extensive pattern of funding-related transactions. Assessment of the situational factors (chapter 4) revealed a mixed pattern of tendencies and countertendencies for differential levels of network intensity in these communities. Both networks had a high level of resource dependency and domain similarity (although one element of resource dependency was significantly higher in Schenectady), but Syracuse had the larger CSS network and significantly higher goal consensus. Schenectady, on the other hand, had a significantly higher level of personal and agency awareness. While it is difficult to account for the differences observed in network intensity as a function of this situational profile as specified in hypotheses 1 and 2, it would appear that neither community had the basis for an elaborate and highly formalized CSS network structure.

All of these observations, however, were derived from an analysis of the number and mix of dyadic relationships between agencies in each community. In order to identify the organized structure in each CSS network, the patterning of these relationships must be considered in terms of the structural equivalency of agencies in each network.

Complexity. The network analysis procedures described in chapter 3 were employed to identify groups of agencies that maintained similar patterns of relationships with other agencies involving client, information, and fund transactions. For each community, three 0/1 matrices were created to reflect the presence or absence of linkages among agencies involving client, information, or fund transactions. These matrices were then input into a computer-based hierarchial clustering program to partition the agencies in each community into structurally equivalent groups or jointly occupied positions (Burt 1976). Agencies are clustered into groups to the extent that they have a common pattern of relationships with other agencies across the client, information, and fund matrices. In effect, the clustering algorithm seeks to reduce a large number of agencies to a smaller number of relatively homogeneous positions.

The results of this phase of the analysis are displayed in exhibit 5-1. In Syracuse, 14 structurally equivalent groups were identified containing 39 agencies or 57 percent of the entire network. The average cluster size was 2.8; the largest cluster contained 5 members, and 6 of the 14 clusters had 2 members each. In Schenectady, 11 structurally equivalent groups were identified containing a total of 29 agencies or 64 percent of the entire network. The average cluster size was 2.6; the largest cluster had 4 members,

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Exhibit 5-1. Structurally equivalent groups and residual agencies in Syracuse and Schenectady CSS networks

SYRACUSE	SCHENECTADY
Cluster 1 (Outpatient / shelter) YMCA - Shelter Upstate Medical Ctr. - Outpt. Psych.	**Cluster 10** (Outpatient / shelter) City Mission * Carver MHC
Cluster 2 (Alcohol rehabilitation) Syracuse Brick House Salvation Army - Emer. Shelter & Rehab.	**Cluster 1** (Funding / planning / alcohol) United Way Salvation Army
Cluster 3 (Family services) Contact Child and Family Services Pastoral Counseling Center Jewish Family Services	**Cluster 4** (Family services) Family and Child Services Catholic Family Services NYS Office of Aging
Cluster 4 (Shelter services) Unity Kitchen Oxford Street Inn Catholic Charities	**Cluster 9** (Criminal justice) County Jail Police Court
Cluster 5 (Jail mental health services) County Jail HPC Forensic Unit	**Cluster 5** (Criminal justice) Family Court Probation Department
Cluster 8 (Planning / funding) United Way Mental Health Association	
Cluster 9 (Planning / advocacy) Mental Patients Alliance Health Consumers Group Community Health Info. (CHIPS)	**Cluster 3** (Advocacy services) Inner-City Ministry People's Advisory Infoline Carver Health Center
Cluster 10 (Mental health planning/admin.) NYS - OMH Regional Office * County DMH-Administration	**Cluster 8** (Mental health planning/ treatment) NYS - OMH Regional Office * CDPC Unit L
Cluster 7 (Geriatric mental health) HPC Geriatric - Evaluation HPC Geriatric - Day & OPC HPC Geriatric - Inpatient	

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Exhibit 5-1. Structurally equivalent groups and residual agencies in Syracuse and Schenectady CSS networks (continued)

SYRACUSE	SCHENECTADY
Cluster 11 (Mental health treatment)	
HPC Unit North - Day	
HPC Unit North - Out	
HPC Unit North - Case Manager	
HPC Unit North - Out	
HPC Unit North - Out	
Cluster 12 (CSP core service agencies)	**Cluster 7** (CSP core service agencies)
* HPC Hutchings Expediter Service	* CDPC Workshop
* HPC Rehab. Out/Fam.	* Cara Club
* HPC Train & Voc. Service	* CDPC Halfway/Case Managers
	* CDPC - Outpatient Clinic
Cluster 6 (Home health services)	**Cluster 2** (Home health services)
Homes Aides - CNY	Visiting Nurses
HPC Proprietary Home Team	City Health Department
Ida Benderson Center	
Cluster 13 (Mental health treatment)	
HPC Unit I - Inpatient	
HPC Unit I - Resource	
Cluster 14 (Vocational training)	**Cluster 6** (Vocational training)
St. Joseph's Hospital	YMCA
* Consolidated Industry - Wkshop	OVR - Spec. Mental Health
* NYS Office Voc. Rehab.	
	Cluster 11 (Developmental disabilities)
	Roosevelt Developmental Services
	Assn. Retarded Citizens
	Living Resources Corporation
	NY Assn. Learning Diabled
Residual Agencies (30)	**Residual Agencies** (16)
Benjamin Rush Center	* Adult Day Center
* Consolidated Industries - Clubhouse	Council on Alcoholism
Community General Hospital	County Mental Health Board
Crouse Irving Memorial Hospital - Emergency Psychiatric	Department of Social Services

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Exhibit 5-1. Structurally equivalent groups and residual agencies in Syracuse and Schenectady CSS networks (continued)

SYRACUSE	SCHENECTADY
Crouse Irving Memorial Hospital - Alcohol / Drug	Dominion House
Health Services Association of Central New York	Dow Adult Residence
HPC Unit I - Outreach (South Avenue)	* Ellis Hospital Inpatient Service
HPC Team E - Inpatient	* Ellis Hospital Outpatient Service
HPC Team E - Day Care	Emmanuel House, Inc.
HPC Team E - Outreach (Irving Avenue)	Human Services Planning Council
HPC Team E - Outreach (Camillus/Radisson)	Jones Home, Inc.
HPC Unit North - Inpatient	Law, Order and Justice
HPC Special Evaluation Services	Schenectady Community Action Program
HPC Emergency House	Schenectady Employment and Training (CETA)
HPC Alternate Housing	Washington Irving Adult Education
* HPC Sunrise / Parkside	YWCA
HPC Education and Training	
HPC Mobile Recreation Team	
Mental Health Information Service	
* County Department of Mental Health - Community Evaluation Team	
* County Department of Mental Health - Community Support System Coordination	
* County Department of Social Services - Post Institutional Services Services Program	
Rescue Mission Alliance	
Sequim County Services	
Syracuse Community Health Center	

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Exhibit 5-1. Structurally equivalent groups and residual agencies in Syracuse and Schenectady CSS networks (continued)

SYRACUSE	SCHENECTADY
* Transitional Living Services, Inc.	
U.S. Social Security Administration	
Upstate Medical Ctr. - Inpt. Psych. Unit	
Volunteer Center	
YWCA - Residence	

* CSP agencies
HPC = Hutchings Psychiatric Center
CDPC = Capital District Psychiatric Center

and 7 of the 11 clusters had 2 members each. The configuration of structurally equivalent groups was thus quite similar in each community.

The large number of residual or unclustered agencies (30 in Syracuse and 16 in Schenectady) indicated, however, that a number of the agencies in each community maintained distinctive patterns of interorganizational relationships. Their patterns of relations were distinctive in the sense that they bore little similarity to or overlap with those of other agencies in the community. Since common patterns of relations define the structure of resource and information flows in each community, the residual agencies may be described as falling outside the structure of resource and information flows in each community. This does not mean, of course, that they had no relations with clustered agencies; it does mean, however, that the combination of other agencies with whom they maintained such relations was relatively unique. This was the only sense in which they could be considered residual.

The implication of these findings is that the CSS networks in both communities were highly complex and fragmented. Complexity in this context refers to the number of different entities that must be coordinated for a network to function as an interorganizational system (Van de Ven and Ferry 1980, p. 303). Viewed as a data reduction procedure, the cluster analysis only reduced the original level of complexity in each network by a modest amount. In Syracuse, the initial complexity associated with 69 distinct agencies was reduced to 44 entities (14 clusters + 30 residual agencies). In Schenectady, the initial complexity was reduced from 45 distinct agencies to 27 entities (11 clusters and 16 residuals). This represented an overall reduction of 36 and 40 percent, respectively.

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Under these circumstances, efforts at interagency coordination or system development on a network-wide basis in each community would require the management of a large number of components. The coordination task would be simplified to the extent that agencies in the network were grouped into a relatively small number of structurally equivalent groups. The basic assumption here is that agencies that are members of structurally equivalent groups tend to be responsive to the same pressures within the network. Deliberate adjustments in the flow of clients, information, or funds that might result from coordination efforts would thus tend to affect the member agencies in similiar ways. To the extent that this in fact occurs, then the complexity of coordination efforts would shift from the level of dealing with many individual agencies on a one-to-one basis to dealing with a small number of agency clusters.

Characteristics of Network Clusters. Additional similarities between communities can also be seen in the types of agencies that are clustered into structurally equivalent groups. Corresponding clusters in Syracuse (Syr) and Schenectady (Sch) are listed in exhibit 5-1 as adjacent pairs. Each cluster is also identified by the primary type of service provided by member agencies. (The numerical designations for each cluster are simply arbitrary reference markers associated with the order in which each group was identified in the cluster analyses). The closest match occurred for the four clusters composed of outpatient/shelter services (Syr 1 - Sch 10), family services (Syr 3 - Sch 4), planning/advocacy services (Syr 9 - Sch 3), and a subset of the CSP core services (Syr 12 - Sch 7). The other five clusters listed in pairwise fashion contained at least one common type of agency. These included alcohol rehabilitation agencies (Syr 2 - Sch 1), jail/criminal justice services (Syr 5 - Sch 9 and 5), State/county mental health agencies (Syr 10 - Sch 8), home health services (Syr 6 - Sch 2), and vocational rehabilitation agencies (Syr 14 - Sch 6).

The remaining clusters were distinctive for each community. In Syracuse, these included shelter services (Cluster 4), Hutchings-based geriatric treatment services (cluster 7), planning/funding services (cluster 8), and Hutchings-based mental health treatment services (clusters 11 and 13). In Schenectady, there was one distinctive cluster consisting of developmental disabilities services (cluster 11). This cluster contained a set of agencies that were not included in the universe of agencies surveyed in Syracuse. Further, in Syracuse, the survey excluded courts, probation services, and city/county health departments. Moreover, three of the unique clusters in Syracuse were associated with Hutchings Psychiatric Center service components, whereas in Schenectady only the segments of the Capital District Psychiatric Center serving Schenectady County were included in the study. Thus, discrepancies in the composition of structurally equivalent groups can in part be attributed to sampling differences in the two data sets.

In each community, the residual agencies that failed to form structurally equivalent groups consisted of a diverse array of service providers. In Syracuse, the 30 residual agencies included 6 of the CSP colleague agencies, 11 Hutchings-based service units, 5 psychiatric programs in community or university hospitals, and 8 other agencies providing mental health, social service, rehabilitation, and planning/advocacy services. In Schenectady, the 16 residual agencies included 3 of the Schenectady Shared Services-CSP agencies, 4 community residences, 2 county agencies, and 7 other agencies providing advocacy, planning, social welfare, and rehabilitation services.

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Further insight into the composition of the structural groups in each community can be obtained from an examination of the primary reasons for the interorganizational relationships associated with each cluster. As part of the survey, agency respondents were asked to describe the reasons for each relationship with another agency. Following Van de Ven et al. (1979), these responses were coded into three categories: (1) direct services (client referral and technical assistance to agency staff), (2) planning and coordination, and (3) resource transactions. Table 5-2 presents a percentage breakdown of these categories for the structural groups and residual agencies in each community. The percentages are listed separately for the total relationships associated with each cluster (without parentheses) and for the total relationships in each network (with parentheses).

In Syracuse, 12 of the 14 structural groups had 67 percent or more of their relationships in the direct service category. The two exceptions were clusters 8 and 9 in which resource transactions (60 percent) and planning/coordination (53 percent) predominated. Cluster 8 contained the United Way agency and the Mental Health Association, while cluster 9 contained three health planning/advocacy agencies including the local Health Systems Agency. Virtually all of the relationships for residual agencies were in the direct service category (93 percent).

The 14 structural groups accounted for 54 percent of the total direct services in the entire network, with each cluster varying between 2 and 7 percent of the total. These groups also accounted for 67 percent of all planning/coordination relationships and 84 percent of the resource transactions. Cluster 9 alone accounted for 38 percent of the planning/coordination relationships. Four clusters accounted for the majority of resource transactions in the entire network: cluster 8 (23 percent), cluster 14 (19 percent), cluster 3 (12 percent), and cluster 4 (12 percent).

In Schenectady, 7 of the 11 structural groups had 70 percent or more of their relationships in the direct service category as did all of the residual agencies. In general, however, the distribution of reasons for relationships was more mixed, with 9 of the 11 clusters having multiple reasons. Clusters 5 and 8 had 50 percent of their relationships in the planning/coordination category, and clusters 1, 3, and 11 had 20 percent of their relationships in the resource category. The 11 structural groups accounted for 65 percent of the total direct services in the entire network, with each cluster varying between 3 and 13 percent of the total. These groups also accounted for 67 percent of the planning/coordination transactions and 56 percent of the resource transactions.

The above findings on network intensity and complexity can be summarized with several observations. First, client and information transactions constituted the predominate basis for resource flows in each CSS network. Both networks thus had a low level of network intensity (indexed primarily by the relatively low volume of funding-related transactions), although the Schenectady CSS network appeared to have more intensity than Syracuse. These results imply that neither network had a high level of formalization and centralization, but that Schenectady (due to its relatively higher level of intensity) may have a more structurally elaborated CSS network. Second, network complexity (indexed primarily by the number and composition of structurally

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Table 5-2. **Primary reason for interorganizational relationships by structurally equivalent groups in the Syracuse and Schenectady CSS networks**

SYRACUSE					SCHENECTADY				
Cluster	N of relation-ships	% Direct services	% Planning and coord.	% Resource transactions	Cluster	N of relation-ships	% Direct services	% Planning and coord.	% Resource transactions
1	10	100.0 (3.4)	--	--	1	10	60.0 (3.8)	20.0 (5.0)	20.0 (8.7)
2	10	100.0 (3.4)	--	--	2	10	80.0 (5.1)	20.0 (5.0)	--
3	19	84.2 (5.5)	--	15.8 (11.5)	3	20	70.0 (8.9)	10.0 (5.0)	20.0 (17.4)
4	15	80.0 (4.1)	--	20.0 (11.5)	4	15	73.3 (7.0)	13.3 (5.0)	13.3 (8.7)
5	10	100.0 (3.4)	--	--	5	10	50.0 (3.2)	50.0 (12.5)	--
6	15	93.4 (4.8)	--	6.7 (3.8)	6	10	100.0 (6.3)	--	--
7	14	100.0 (4.8)	--	--	7	20	100.0 (12.7)	--	--
8	10	30.0 (1.0)	10.0 (4.8)	60.0 (23.1)	8	10	40.0 (2.5)	50.0 (12.5)	10.0 (4.3)

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Table 5-2. Primary reason for interorganizational relationships by structurally equivalent groups in the Syracuse and Schenectady CSS networks (continued)

	SYRACUSE					SCHENECTADY				
	Cluster	N of relation-ships	% Direct services	% Planning and coord.	% Resource transactions	Cluster	N of relation-ships	% Direct services	% Planning and coord.	% Resource transactions
	9	15	40.0 (2.1)	52.3 (38.1)	6.7 (3.8)	9	9	77.8 (4.4)	22.2 (5.0)	--
*	10	10	80.0 (2.7)	10.0 (4.8)	10.0 (3.8)	10	9	77.8 (4.4)	22.2 (5.0)	-- --
	11	25	84.0 (7.2)	12.0 (14.3)	4.0 (3.8)	11	20	55.0 (7.0)	25.0 (12.5)	20.0 (17.4)
*	12	15	93.3 (4.8)	6.7 (4.8)	--	Residuals	78	70.5 (34.8)	16.7 (32.5)	12.8 (43.5)
	13	9	88.9 (2.7)	--	11.1 (3.8)					
*	14	15	66.76 (3.4)	--	33.3 (19.2)					
	Residuals	146	92.5 (46.4)	4.8 (33.3)	2.7 (15.7)					

* CSP agency clusters

equivalent groups) was high in both communities. Moreover, the network structure in each community was incomplete in that a large number of CSS agencies did not fall into any cluster.

Here again, countervailing tendencies were found with regard to expectations for the levels of formalization and centralization in each network. The complexity results imply that formalization and centralization would be higher in Syracuse because of its larger number of clusters and residual agencies. Whether these expectations were supported by the data is the focus of the next section.

Network Formalization and Centralization

The framework proposed by Van de Ven and Ferry (1980) suggests that two important dimensions of network structure are formalization and centralization of decisionmaking. Formalization refers to the degree to which agency relations are specified by formal rules and conditions and is measured by the extent of formalization of agreements among agencies. A scale was created in which the reported extent of formal relations was scored as follows: "If an agreement has been established between your agency and the other, is the agreement verbal (score = 1), or do you have a written agreement (score = 2), or is there a legal contract (score = 3), or is the relationship mandated by law (score = 4)?"

Centralization of decisionmaking refers to the degree of inclusive or concerted decisionmaking by the aggregate of agencies that are members of the network. Concerted decisions are normally made by a committee or group of individuals representing the member agencies of the network for the purpose of coordinating interagency activities. This dimension was measured by first establishing whether a relationship was governed by the existence of an interagency committee and then determining the extent to which the committee was formalized (scored 1 = no extent to 5 = great extent) and the extent to which decisions made by the committee were binding on the participants (also scored on the 1 to 5 extent scale).

Hypotheses 3 and 4 in the Van de Ven and Ferry framework hold that the levels of network complexity, formalization, and centralization are a function of the number of agencies and the intensity of relationships in the network. This section examines the degree of agreement formalization and centralization of decisionmaking in the Schenectady and Syracuse CSS networks. Findings are presented both for the overall levels of formalization and centralization in the two networks and for the structurally equivalent groups of agencies within each network.

Agreement Formalization. Table 5-3 displays the mean value, standard deviation, and number of relations for each cluster on the agreement formalization dimension in both Syracuse and Schenectady. The overall conclusion to be gleaned from table 5-3 is that, in both communities, there was very little formalization of agreement among agencies. The mean value for all agencies comprising the network was 1.52 in Syracuse and 1.74 in Schenectady. Further, of the 195 possible relationships for cluster member agencies in Syracuse (39 agencies times 5 relations for each), only 92 (or 47 percent)

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Table 5-3. The extent of agreement formalization, by cluster, in the Syracuse and Schenectady CSS networks

SYRACUSE				SCHENECTADY			
Cluster	N	$\bar{X}$	SD	Cluster	N	$\bar{X}$	SD
1	0	--	--	1	6	1.83	.41
2	0	--	--	2	2	2.00	1.41
3	9	1.22	.44	3	15	1.67	.72
4	1	2.00	--	4	13	2.00	.82
5	4	2.50	1.00	5	7	2.71	.76
6	8	1.50	.93	6	5	1.40	.55
7	13	1.23	.60	7*	5	1.00	0
8	5	1.20	.44	8*	4	2.25	.50
9	4	2.75	.50	9	4	1.50	1.00
10*	5	2.60	.89	10*	4	1.25	.50
11	14	1.14	.53	11	13	1.46	1.26
12*	14	1.00	0				
13	5	1.40	.89				
14*	10	2.20	1.03				
Totals	92	1.52	.84	Totals	78	1.74	.89

*CSP clusters

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had any type of agreement. The situation was much the same in Schenectady; of 145 possible relations (29 agencies times 5 relations each), 78 (or 54 percent) had agreements. Thus, in each community, the relations that had some sort of agreement attached to them tended not to be formalized to any great extent.

Interestingly, in both communities the clusters composed exclusively of CSP agencies had the lowest degree of agreement formalization (it should be noted, however, that Syracuse clusters 1 and 2 had no relations with agreements attached to them). That is, cluster 12 in Syracuse had three CSP agencies and no other members, while cluster 7 in Schenectady had four CSP agencies only; these pure CSP clusters also had the least agreement formalization. In both communities, cluster members that had any agreement at all with other agencies had only verbal agreements; indeed, the standard deviation in each cluster was 0. An important difference between the clusters, however, was that 14 of the possible 15 relations in the Syracuse CSP cluster were accompanied by verbal agreements. In contrast, only 5 of 25 possible relations in the Schenectady CSP cluster were verbally agreed upon. This suggests that while the degree of agreement formalization of the Syracuse CSP cluster was certainly quite low, the majority of relations of the Schenectady CSP had no agreement attached to them at all.

In Syracuse, clusters 10 and 14 also contained CSP agencies. The mean level of agreement formalization in these two clusters was higher than in the pure CSP cluster (cluster 12). Still, when these three CSP clusters were considered as a group, their mean level of agreement formalization ($\bar{X}$=1.69), though slightly higher, was not significantly different from the mean level of agreement formalization of the non-CSP clusters ($\bar{X}$=1.44). In Schenectady, clusters 8 and 10 contained CSP agencies as well, and here too the mean level of agreement formalization was slightly higher than in the pure cluster (cluster 7). Considered as a group, the three CSP clusters had a mean level of agreement formalization that was lower than the level for non-CSP clusters ($\bar{X}$=1.46 vs. $\bar{X}$=1.80). This difference, however, was not statistically significant.

Three sorts of conclusions may be reached regarding agreement formalization in each community. First, a great many of the relations in both communities had no agreements associated with them at all. Second, of those relations that had some agreement attached to them, the degree of formalization of the agreements tended to be quite low, tending toward the verbal. And finally, the pure CSP clusters, somewhat surprisingly, had low levels of agreement formalization.

Centralization. For each community, table 5-4 displays the mean cluster scores for the extent of committee formalization, one of two measures of centralization. It will be recalled that in Syracuse a total of 195 possible relations for cluster members existed, while in Schenectady 145 such relations existed. In Syracuse, 66 (or 33.8 percent) of these relations were associated with an interorganizational committee; in Schenectady, 69 (or 47.6 percent) relations took place in such a context. The existence, therefore, of interorganizational committees was more widespread in the latter community. Yet, if one looks at the mean level of committee formalization, it can be seen that the committees in Syracuse were slightly more formalized than those in Schenectady. Thus, although committees were more widespread in Schenectady than in

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Table 5-4. The extent of committee formalization, by cluster, in the Syracuse and Schenectady CSS networks

SYRACUSE				SCHENECTADY			
Cluster	N	$\bar{X}$	SD	Cluster	N	$\bar{X}$	SD
1	1	2.00	--	1	5	2.00	1.41
2	1	2.00	--	2	4	2.25	.50
3	5	1.80	1.09	3	8	2.12	.64
4	2	3.00	0	4	9	2.44	.73
5	4	2.00	1.15	5	7	1.71	.95
6	2	2.50	.71	6	1	2.00	--
7	6	2.17	.98	7*	16	1.87	.34
8	6	2.67	.82	8*	3	2.67	.58
9	3	2.00	0	9	3	1.00	0
10*	5	3.00	0	10*	2	2.00	0
11	13	2.77	.44	11	11	2.00	.89
12*	9	2.00	1.22				
13	3	2.00	1.00				
14*	6	2.50	.55				
Totals	66	2.38	.84	Totals	69	2.01	.76

*CSP clusters

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Syracuse, they tended to be more formal (i.e., have concrete rules and procedures) in the latter community. It must be remembered, however, that overall the degree of formalization of existing communities tended to be low. Therefore, formalization per se may not order relationships since there were fewer agreements in all (table 5-3).

The CSP clusters accounted for nearly a third (20 of 66 or 30 percent) of the relations controlled by committees in Syracuse. The mean score for committee formalization for the pure CSP cluster (12) was 2.00, indicating that the committees that regulate this cluster's relations were only minimally formalized. Much the same was true for the other two CSP clusters, 14 and 10. Cluster 10 did have the highest mean score of the CSP clusters (3.00), and, indeed, along with cluster 4 had the highest committee formalization of all the clusters. However, this highest value still only indicated "some" degree of committee formalization so that overall, little committee formalization existed.

In Schenectady, the extent of committee formalization appeared to be even less than in Syracuse. The pure CSP cluster, cluster 7, had one of the lowest average levels of committee formalization ($\bar{X}$ = 1.87). Still, 16 out of its 20 relations occurred in the context of an interorganizational committee, indicating the presence of such committees even though they were relatively informal. The other two CSP clusters, 8 and 10, had higher levels of formalization; cluster 8, in fact, had the highest level of agreement formalization ($\bar{X}$ = 2.67). As was the case in Syracuse, however, the highest mean value in the network still did not suggest that committees were formalized to any great extent.

A slightly different question concerns the degree to which decisions made by the interorganizational committee were binding on participants. Table 5-5 presents the data on this question. The more decisions made by committees are binding, according to Van de Ven and Ferry (1980), the greater the centralization of decisionmaking in the community. According to this view, the results in table 5-5 suggest that centralization of decisionmaking was not high in either community. In Syracuse, the mean value of bindingness of committee decisions was 2.20, while in Schenectady it was 2.37. Thus, while decisions were binding to some extent, a rather large amount of autonomy appeared to characterize member agencies.

The mean scores on this variable for each cluster tended to be quite similar. In Syracuse, three clusters (1, 2, and 10), had mean scores of 1, indicating that committee decisions for this cluster were not binding at all. Cluster 4 had a mean score of 3, which suggests that committee decisions for this clusters were binding to some extent. The remaining 11 clusters all had very similar values. In Schenectady, one cluster (9) had a value of 1, while two clusters (6 and 10) had values of 3. Once again, the remaining clusters had very similar values.

The CSP clusters in both communities tended to be quite similar to the other clusters. As indicated above, cluster 10 in Syracuse had one of the lowest mean scores in the community; committees of which this cluster was a part made decisions that were not binding at all. The pure CSP cluster (12) had a mean score of 2.33, while the other CSP cluster (14) had a mean score of 2.50. In Schenectady, the pure CSP cluster

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Table 5-5. The extent committee decisions are binding, by cluster, in the Syracuse and Schenectady CSS networks

SYRACUSE				SCHENECTADY			
Cluster	N	$\bar{X}$	SD	Cluster	N	$\bar{X}$	SD
1	1	1.00	--	1	5	2.80	.45
2	1	1.00	--	2	4	1.75	.50
3	5	2.20	1.09	3	8	2.62	.52
4	2	3.00	0	4	9	2.55	.73
5	4	2.00	1.15	5	7	2.43	.79
6	2	2.00	1.41	6	1	3.00	--
7	6	2.50	.84	7*	11	2.09	1.14
8	6	2.67	.82	8*	3	2.33	.58
9	3	2.00	0	9	3	1.00	0
10*	5	1.00	0	10*	2	3.00	0
11	13	2.31	.48	11	12	2.50	.52
12*	9	2.33	1.00				
13	3	2.00	1.00				
14*	6	2.50	.84				
Totals	66	2.20	.86	Totals	65	2.37	.78

*CSP clusters

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(7) had a mean score of 2.09, while cluster 8 had a value of 2.33. The other CSP cluster (10) had a mean score of 3.0, one of the highest in the network. Since a value of 3.0 only indicates that decisions were binding to "some" extent, and the highest values among the clusters was 3.0, it must be concluded that the centralization of decisionmaking, as measured by the degree to which committee decisions are binding, was quite low. Further, this conclusion would appear to hold true in both communities.

The Level of Managed Coordination

The evidence generated in this study concerning four of the key hypotheses in the Van de Ven and Ferry framework has now been reviewed. In general, the findings suggest that while the situational factors were propitious for a moderate to high level of intensity in each network, in fact, only a modest level of intense resource flows (i.e., those that were funding related) occurred in each CSS network. Analysis of network complexity revealed a highly fragmented and incomplete structure in each network. Accordingly, the levels of network formalization and centralization were found to be exceedingly low for both CSP core service agencies and the CSS network as a whole.

On the basis of these findings, how might the level of managed coordination attained in the two CSS networks be characterized? The classification scheme proposed by Whetten (1981) and by Mulford and Rogers (1982) provides a means of distinguishing among three forms of managed coordination in terms of network intensity, complexity, formalization, and centralization. Coordination by mutual adjustment, the weakest form, relies on informal and unwritten agreements to govern interagency relations. The intensity of interaction is low, determined by ad hoc needs rather than schedule, and the network functions "less as a system-level resource than as an arena within which organizational actors contest and resolve community-level decisions" (Laumann et al. 1978, p. 469). The alliance strategy, a stronger form of coordination, is based on the presence of negotiated agreements involving somewhat larger sets of actors. Written expectations are set, and coordinating councils or interagency federations with a mix of formal and informal decisionmaking structures appear. Finally, the corporate strategy is the strongest form of coordination. It is highly formalized with a centralized decisionmaking structure governing the interactions among member agencies.

The findings reported in this chapter indicate that the Schenectady and Syracuse CSS networks were characterized by low intensity of resource flows, high complexity, and little formalization of agreements or centralized decisionmaking. This profile corresponds most closely to the mutual adjustment form of coordination. As Whetten (1981, p. 11-12) points out, this strategy ". . . can be characterized as providing for the narrowest range of benefits and also as involving the fewest costs." While cooperative interagency relationships did occur, they tended to focus on specific cases rather than on the development of a comprehensive delivery system. Individuals involved in the day-to-day activities of any agency often attended meetings or made phone contacts with their counterparts in other agencies as the need arose. Since few if any resources were being committed through these cooperative relationships, it was unnecessary for those with higher authority to get involved or for alliance or corporate coordination

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structure to be created. Rules were made on an ad hoc basis, and complete decisionmaking authority was retained by the participating organizations.

The conclusion to be drawn from the data reviewed in this chapter is that the CSS networks in both Schenectady and Syracuse functioned as loose associations of agencies rather than the tightly knit interorganizational entities envisioned in the CSP guidelines promulgated by the NIMH (Tessler and Goldman 1982). This conclusion, however, is based on an assessment of the aggregate relationships in each CSS network. Still to be considered are the number, content, and organization of the subset of resource and information flows that link the structurally equivalent groups or agency clusters in each CSS network. These groupings may be thought of as nodes or building blocks that must be formally coordinated if a viable system of services for the chronically mentally ill is to be created in each community. As such, the nature of the linkages between these clusters is an important criterion for determining the extent of system development. This issue is addressed in the next chapter.

Summary

This chapter focused on the overall levels of intensity, complexity, formalization, and centralization of the interorganizational relationships in the Schenectady and Syracuse CSS networks. The findings indicated that client and information transactions constituted the predominate basis for resource flows in each network. Both networks thus had a low level of intensity (indexed primarily by funding-related transactions), although the Schenectady CSS network was relatively more intense than the Syracuse network. Network complexity (indexed primarily by the number and composition of structurally equivalent groups) was high in both communities. In combination, these two dimensions indicated that the CSS networks were based on relatively fragmented and weak interorganizational ties.

In addition, the analysis suggested that relatively few agreements accompanied relations in either network, and for those agreements that did exist, the degree of formalization was quite low. Indeed, agreements tended to be verbal rather than written, contractual, or mandated. The findings relative to centralization of decisionmaking were much the same. The existence of interagency committees was not widespread, and those that did exist tended to be both informal and not to have binding decisionmaking power over their members. Thus, the findings pointed to a relatively unstructured and decentralized network of relations in both communities. Within each network, the CSP clusters did not stand out as having relations very different from the other clusters.

In sum, both networks appeared to rely upon the mutual adjustment form of coordination. Patterns of resource flows had developed and these were, to a limited extent, coordinated through the presence of informal interagency committees. Few of these committees had binding decisionmaking power over member agencies. This indicated that agencies retained a great deal of their organizational autonomy. In large measure the agencies in both networks retained the option of cooperating or not while at the same time facilitating client and information flows through the use of committees and regular contact.

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6

THE CSS NETWORK AS A SYSTEM

In this chapter, analysis shifts from a network to a systemic level to address the third major issue associated with the research framework, viz, in what ways does the network structure in each community correspond to a system of services? The findings presented in prior chapters have focused on the number, variety, and covariation of resource and information flows among agencies in each CSS network and the extent to which these relationships were formalized and centralized. The description of the structurally equivalent groups detected in the hierarchial clustering has thus far dealt only with the relational characteristics of the agencies in each grouping. Here the analysis is extended by focusing on the nature and extent of relationships between clusters in each network. This was done by aggregating interagency relationships into intercluster relationships. Such relationships constitute the web of interdependencies that tie positions together into a cohesive system. The relative absence of relationships is an indication of systemic fragmentation or isolation of the clusters, whereas the relative completeness of ties among all the positions is an indication of high structural connectivity. Intermediate levels of linkage between clusters help to define the extent to which the structure is loosely or tightly coupled.

The aim was to examine the patterns of relationships between clusters to determine the extent to which role differentiation and hierarchy were present in each network. These systemic properties were analyzed in terms of Burt's (1976) typology of network positions. In addition, the relative formalization and centralization of the relationships by which specific positions were linked to one another were examined to gain an understanding of the overall level of systemic coordination in each CSS network.

Intercluster Relationships

Before proceeding to the identification and interpretation of intercluster relationships in the two CSS networks, it will be helpful to recapitulate the logic of data manipulation up to this point and the movement from one level of analysis to another. As described in earlier chapters, three interaction matrices (clients, funds, and information) were created for the Syracuse and Schenectady data sets reflecting the actual linkages between each agency and up to five other agencies. These data were then submitted to a hierarchial clustering analysis to derive structurally equivalent groupings of agencies in terms of their common patterns of resource flow across the three matrices. As part of this hierarchial cluster analysis, the three

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interaction matrices were transformed into a single density matrix representing the normalized Euclidian distances between agencies across the three interaction domains (see chapter 3 and appendix 2). These normalized distances reflect the direct linkages between agencies as well as the indirect relationships that arise when two agencies without direct ties are linked together through their common ties to some third agency (Burt 1976). Normalization also helps to standardize the metric across the three interaction domains of client, fund, and information transactions.

These data manipulations were needed to transform the raw data based on dyadic or pairwise relationships into structurally equivalent groups that represented positions or role-sets at the network level of analysis (Burt 1976; Burt 1980). Analysis of these groupings up to this point, however, had focused primarily on their relative frequency and member composition. Now, the analysis was extended by focusing on the clusters themselves as the unit of analysis appropriate for systems assessments of the two CSS networks.

The blockmodeling procedures described in chapter 3 were used to analyze the pattern of connectivity among clusters in each community. In these analyses, attention centered only on the structurally equivalent groups; residual agencies were ignored as they were not directly involved in the structural configuration. The source data for the blockmodel analysis consisted of the linkages between members of the structurally equivalent groups involving client, information, or fund transactions. The density of relations from one position to another was then computed as the proportion of actual ties to the total number of possible ties for each pair of clusters. This measured intercluster density. A measure of intracluster density can also be computed by deriving the proportion of actual ties to the total number of possible ties for the members of each cluster. The resultant data can be displayed in an N by N matrix of densities, where N is equal to the number of structural groups in the community. The main diagonal contains the intracluster densities, and the off-diagonal entries represent the intercluster densities between each pair of clusters (see appendix 2 for the density matrices for Syracuse and Schenectady).[1]

In the second stage of the blockmodel analysis, the density matrix was transformed into a 0/1 image matrix. This typically involves the use of the average density in the matrix as a cut-off value (Knoke and Kuklinski 1982, p. 74). The average density for Syracuse was 0.111; for Schenectady it was 0.151. All densities above the respective cut-off values were scored 1 and all densities below were scored 0. The resultant image matrix for each network (as displayed in tables 6-1 and 6-2) represented a numerical depiction of the pattern of direct and indirect relationships among the structural groups. Cells with a 1 entry indicate the presence of a relationship between corresponding row (chooser) and column (chosen) clusters; those with a 0 entry indicate the absence of a relationship.

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[1] The pattern reflected in these density matrices indicated that the structurally equivalent groups in each CSS network had relatively high intracluster densities. This indicated that these clusters were internally composed of cliques (intensely interacting agencies) that also had similar patterns of relationships with agencies in other clusters.

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As it is difficult to visualize and interpret the pattern of intercluster relationships in these image matrices, a multidimensional scaling (MDS) program (Alba and Gutmann 1972) was used to construct a spatial representation or map of each matrix. The cell entries in each image matrix were treated as proximity measures of the relationships between each pair of clusters. Cells with a 1 (presence of a direct or indirect

Table 6-1. Syracuse cluster level image matrix

Choosing clusters	Chosen clusters													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	0	0	0	1	0	0	0	0	0	0	0	1	1
2	0	1	0	0	1	0	0	0	0	0	0	0	0	1
3	0	1	1	1	0	0	0	1	0	1	0	0	0	1
4	0	0	0	1	0	0	0	1	0	1	0	0	1	1
5	0	0	0	0	1	0	0	0	0	0	0	1	1	0
6	0	0	0	1	1	1	1	0	0	0	0	1	0	0
7	0	0	0	0	0	0	1	0	0	0	0	1	1	0
8	0	0	0	1	0	0	0	1	1	1	0	0	0	1
9	0	0	0	0	0	0	0	1	1	1	0	0	0	1
10	0	0	0	0	0	0	0	1	0	1	0	0	0	1
11	0	0	0	0	0	0	0	0	0	0	1	1	0	0
12	0	0	0	0	0	0	0	0	0	0	1	1	1	0
13	0	0	0	0	0	0	0	0	0	0	0	1	1	1
14	0	0	0	0	0	0	0	1	0	1	0	1	1	1

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Table 6-2. Schenectady cluster level image matrix

Choosing clusters	Chosen clusters										
	1	2	3	4	5	6	7	8	9	10	11
1	1	0	0	1	0	0	1	0	0	0	0
2	0	1	1	1	1	0	0	0	0	0	0
3	1	0	1	1	0	0	0	0	0	1	0
4	0	0	0	1	1	0	0	0	1	0	0
5	0	0	0	1	1	0	0	0	1	0	0
6	0	0	0	0	1	1	1	0	1	0	0
7	0	0	0	0	0	0	1	0	1	1	0
8	0	0	0	0	0	0	1	1	1	0	1
9	0	0	0	0	1	0	1	1	1	0	0
10	0	0	1	0	1	0	1	0	0	1	0
11	1	0	0	1	0	0	1	0	0	0	1

relationship) indicate that the corresponding clusters are more similar; cells with a 0 (absence of a relationship) indicate that the corresponding clusters are more dissimilar. On the basis of these proximities, the MDS analysis derives distance measures between each pair of clusters and then positions each cluster in n-dimensional Euclidian space such that similar clusters are located closer together and dissimilar clusters are located farther apart (Kruskal and Wish 1978). The task in any MDS analysis is to determine the minimum number of dimensions (spatial axes) needed to position the points (clusters) in a way that provides a tolerable fit or correspondence to the original proximities. The goodness-of-fit between the spatial representation and the proximities is measured by a stress coefficient, which can vary from 0.0 (perfect fit) to 1.0 (complete lack of fit). Generally, stress values of 0.15 or less are considered to yield tolerable solutions.

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In the present application, a three-dimensional representation yielded the smallest stress values for the Schenectady (stress = .191) and Syracuse (stress = .277) image matrices. While these values indicated that the spatial representations did not exactly reproduce the image matrices, the cluster mappings can nevertheless be interpreted as rough sociometric maps of the CSS networks in which greater intercluster distance reflects less resource flow between the structurally equivalent groups or clusters. Examining the closeness/distance among the clusters reveals the hidden structure or meaning of the spatial representations.

The sociometric maps of the Schenectady and Syracuse CSS networks are displayed in figure 6-1. In each map, two regions or neighborhoods consisting of closely linked clusters can be identified. These regions are circumscribed on the two geometric plots. For Schenectady, one region consisted of clusters 3, 4, and 5 (projected above and below the surface of the plane in the lower left quadrant), and the other region consisted of clusters 6, 7, 8, 9, and 11 (projected above or close to the surface of the plane in the other quadrants). In general, this cluster separation appears to be interpretable in terms of community-based versus institutionally based service providers. As enumerated in exhibit 6-1, the community-based region encompassed advocacy agencies (cluster 3), Family Court and Probation (cluster 4), and family service agencies (cluster 5). The institutional region encompassed the CSP core service agencies (cluster 7) that were associated with the Capital District Psychiatric Center, the NYS Regional Mental Health Office and CDPC-Unit L (cluster 8), County Jail and Police Court (cluster 9), and a group of State and voluntary agencies serving the developmentally disabled (cluster 11), and a YMCA shelter program and the State Office of Vocational Rehabilitation (cluster 6). The other clusters appeared to be not closely linked to each other or to the two major regions. Although the separation was not perfect, the institutional region tended to be defined in terms of public/governmental agencies whereas the community region tended to be defined by private/voluntary agencies.

For Syracuse, similar regions could be identified from the MDS mapping, and the public/private split was even more pronounced. Here, five institutionally based mental health service clusters were closely linked in one region (projected above the plane and close to the center) and six community-based service providers were closely linked in the other region (projected above the plane in the upper quadrants). As enumerated in exhibit 6-1, both regions contained remarkably similar clusters. In Syracuse, the institutional region consisted of the County Jail and HPC Forensic Unit (cluster 5), the HPC-CSP agencies (cluster 12), two components of a HPC adult psychiatric treatment unit (cluster 13), three components of the HPC Geriatric Treatment Unit (cluster 7), and three home care rehabilitation agencies (cluster 6). The community region, in turn, consisted of family service agencies (cluster 3), shelter services (cluster 4), the United Way and Mental Health Association (cluster 8), State and county mental health offices (cluster 10), advocacy services (cluster 9), and CSP-related vocational training services and a general hospital psychiatric inpatient unit (cluster 14).

The other clusters in the Syracuse network did not appear to be closely related to either the institutional or the community sets. Cluster 11 (HPC - Unit North) provides comprehensive adult psychiatric services to residents of a suburban area outside of

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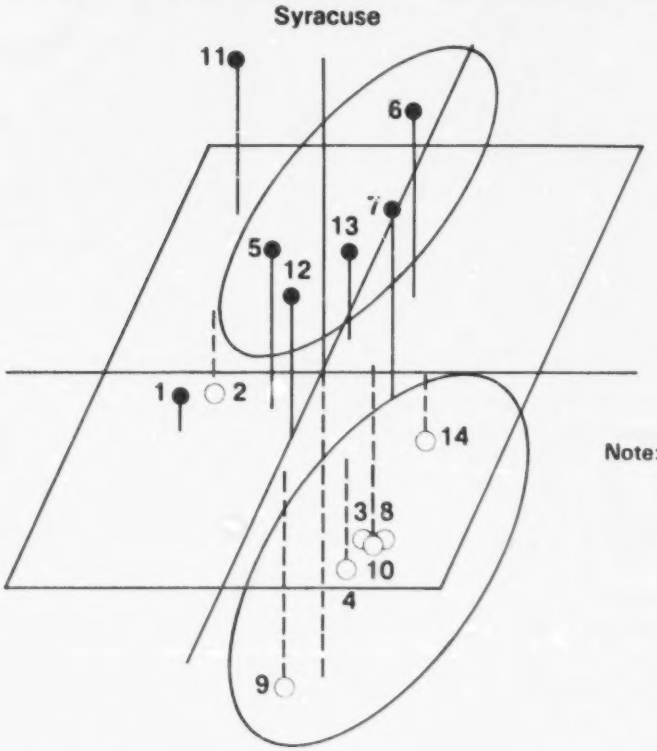
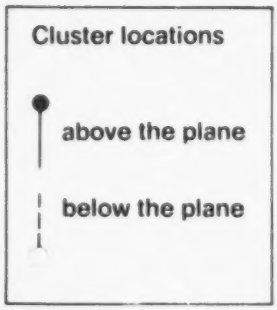
Figure 6-1

MDS representations of intercluster relationships in CSS networks



Note: Clusters 3, 8 and 10 were essentially superimposed; only a single line to locate them is shown.



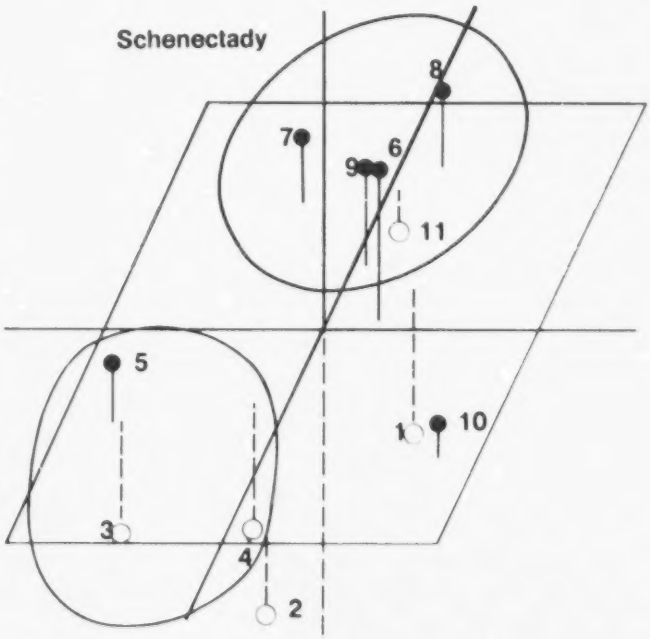


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Exhibit 6-i. Specialized regions in the CSS networks

SYRACUSE

Institutional Mental Health Region

Cluster 12
HPC - Expediter Service*
HPC - Rehab. Outpatient/Family*
HPC Training and Vocational Rehab.*

Cluster 5
County Jail
HPC Forensic Unit

Cluster 6
Home Aides - CNY
HPC Proprietary Home Team
Ida Benderson Center

Cluster 7
HPC Geriatric - Evaluation
HPC Geriatric - Day and OPC
HPC Geriatric Inpatient

Cluster 13
HPC - Unit I Inpatient
HPC - Unit I Resource

Community Services Region

Cluster 3
Contact
Children and Family
Pastoral Counseling
Jewish Family Services

Cluster 4
Unity Kitchen
Oxford Street Inn
Catholic Charities

Cluster 8
United Way
Mental Health Association

SCHENECTADY

Institutional Mental Health Region

Cluster 6
YMCA
Office Vocational Rehabiliation

Cluster 7
CDPC Workshop*
Clara Club*
CDPC Halfway House*
CDPC Outpatient*

Cluster 8
NYS - OMH Regional Office
CDPC Unit "L"

Cluster 9
County Jail
Police Court

Cluster 11
Roosevelt Development Services
Association of Retarded Citizens
LIV Corporation
NYS Association for the Learning Disabled

Cluster 3

Cluster 3
Inter-City Ministry
People's Advisory
Infoline
Carver Health Center

Cluster 4
Family and Children
Catholic Family Services
Office of the Aging

Cluster 5
Family Court
Probation Department

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Exhibit 6-1. Specialized regions in the CSS networks (continued)

SYRACUSE

Cluster 9
Mental Patients Alliance
Health Consumers Group
Community Health Information Services

Cluster 10
NYS - OMH Regional Office
County DMH - Administration*

Cluster 14
St. Joseph's Hosp. Psychiatric Serv.
Consolidated Industries - Workshop*
NYS Office Vocational Rehabilitation

SCHENECTADY

* Indicates a CSP agency.

Syracuse. It is located in the upper left quadrant of the MDS mapping peripheral to the institutional set. Cluster 2 (alcohol rehabilitation agencies) projects below the surface along with the other community-based service clusters, but it is far removed from the region of the main community set. Similarly, cluster 1 (YMCA shelter and a university medical center outpatient psychiatric clinic) is located above the surface in the lower left quadrant, indicating that it might function as an outlier to the main institutional services set.

What this patterning suggests is that not only were intercluster relationships in each network relatively sparse, but they tended to occur within two fairly distinct spheres of community and institutional activities. The community-based set of clusters included private agencies primarily from the voluntary service sector, which provides generic social or human services. The institutionally based set of clusters included agencies primarily from the governmental sector (most were State-operated services) that provide specialty mental health treatment and rehabilitation services. Given the spatial configuration of these two regions, it would appear that most resource flows were region specific. That is, clusters within each region appeared to relate most closely with other region members, with relatively little resource flow between clusters in different regions. However, further analyses are needed to describe the actual patterns of resource flows in these networks.

The digraphs displayed in figures 6-2 and 6-3 examine the actual relationships within and between the regions in each network. The relative positioning of clusters in each graph is based on the MDS results, but the configurations are expressed in two-dimensional rather than three-dimensional space. While the graphs, therefore, do not correspond exactly to the MDS mappings, they do preserve the regional separation of

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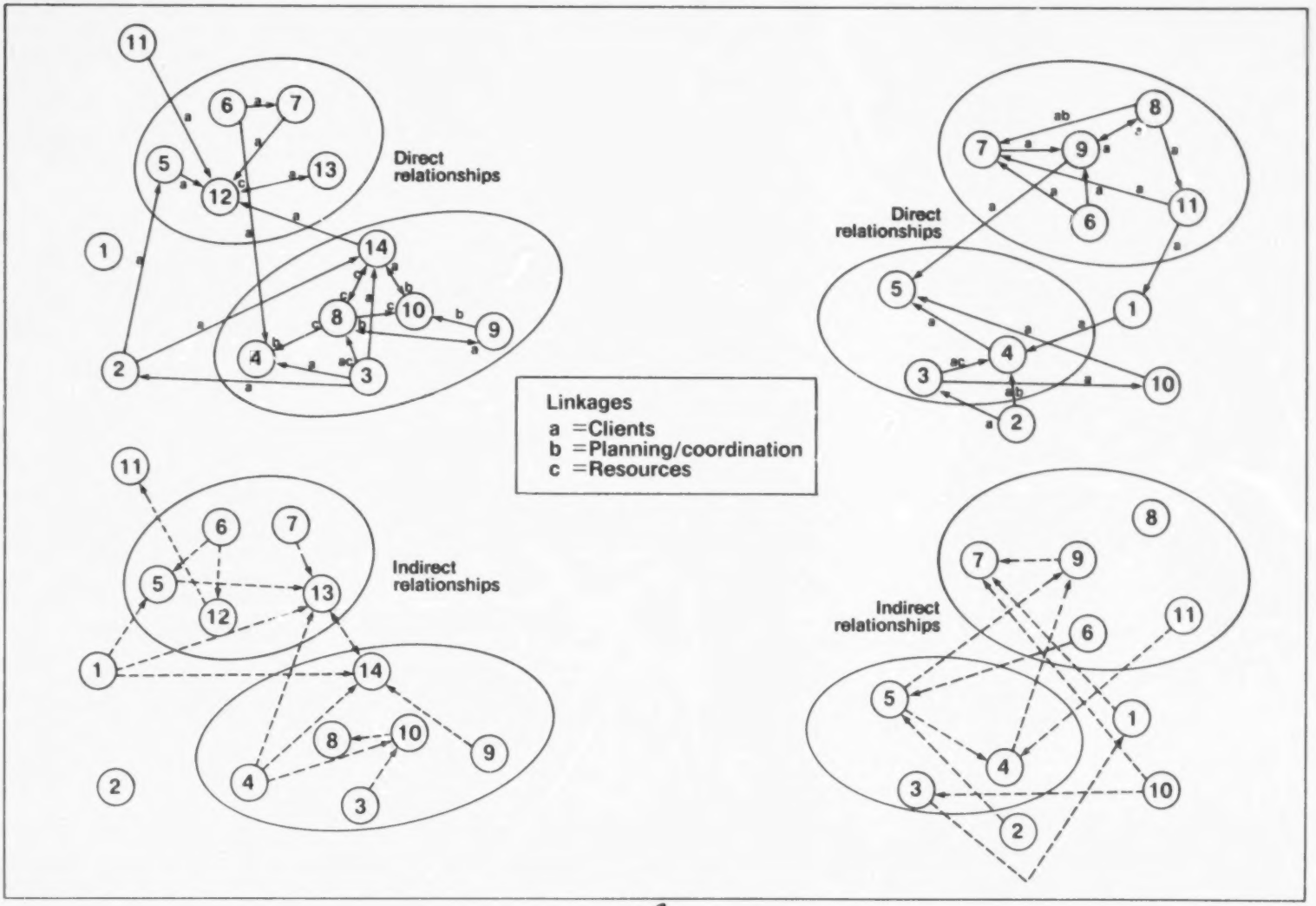
Figure 6-2
Digraph representation of intercluster linkages in Syracuse

Figure 6-3
Digraph representation of intercluster linkages in Schenectady



clusters, and they allow for insertion of connecting lines between clusters in a way that is difficult to superimpose on the MDS results. Rather than 0/1 density scores, these lines represent actual linkages between agencies, but the linkages are aggregated up to the cluster or positional level of analysis. The graphs present separate representations of the direct and indirect relationships among the clusters in each network. Direct relationships are those in which two clusters are joined by an actual resource flow (i.e., at least one agency in the first cluster is linked to an agency in the second cluster); indirect relationships are those that are mediated by a third cluster. Directional (arrow tipped) lines identify the sending and receiving clusters for both types of relationships. In addition, direct relationships are labeled according to the specific reasons for the linkage as reported to us by the agency respondents: (1) direct services, (2) planning and coordination, and (3) resource transactions. From these graphic displays an understanding can now be developed of the actual patterns of intercluster relationships as well as the extent of role differentiation and hierarchy in each CSS network.

Inspection of the direct relationship graphs reveals three broad similarities between the Schenectady and Syracuse networks. First, there were relatively few direct linkages among the structurally equivalent clusters. In Schenectady, only 17 of 110 (15 percent) potential direct intercluster linkages actually occurred, and in Syracuse only 24 of 182 (13 percent) potential direct intercluster linkages actually occurred. Even when indirect linkages were included, the cumulative totals amounted to only 40 and 34 percent, respectively. Second, most of the relationships were uniplex (single resource content) and based on direct services to clients. In Schenectady, 14 of the 17 direct relationships were uniplex, and 93 percent of these were based on client services. In Syracuse, 23 of the 24 direct relationships were uniplex, and 61 percent of these were based on direct services. And third, most of the relationships occurred between clusters in the same region. In Schenectady, there was only one direct linkage between regions (from cluster 9 to 5) and in Syracuse there were only two direct linkages between regions (from cluster 14 to 12 and from cluster 6 to 4). The indirect relationships displayed in the second set of graphs tended to follow the same overall pattern. While there were a few indirect relationships between the two regions in each network, most of the indirect linkages occurred within regions or linked peripheral clusters to one or both of the main regions.

These findings confirmed the earlier interpretation of the MDS mappings, and they are consistent with the findings presented in chapter 5 for the total set of relationships in each community. Namely, both networks tended to be rather sparsely connected, and the majority of the relationships that did exist involved direct services to clients. Overall, then, the network structures were highly fragmented, and there was little apparent basis for a corporate form of networkwide coordination in either community. The existence of two identifiable regions in each network, however, suggests the possibility that although a single integrated system did not exist, each network may be two distinct subsystems. A closer examination of the relationships within each region of the two networks will help to clarify this possibility.

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Systemic Role Differentiation and Hierarchy

Before proceeding with the analysis, however, the issue must be addressed of what criteria should be used to identify subsystems in each network. How does one recognize a subsystem? Earlier it was suggested that two of the core characteristics of systems or subsystems are role differentiation and hierarchy. Role differentiation is a basic process that occurs over time in any complex social organization such as a voluntary association, a business organization, or an entire community. It refers to the extent of functional specialization or division of labor among the component units of a system of organization. Hierarchy, in turn, refers to patterns of super and subordination among component units, usually with regard to decisionmaking or levels of influence. Units at the top of the hierarchy are able to influence or control the behaviors of units positioned at lower levels. Thus, role differentiation can be conceptualized as the horizontal spread or differentiation of functions, while hierarchy can be conceptualized in terms of their vertical integration or centralization into a cohesive entity.

In the present context, these terms are used to describe a system of human service organizations. Here, the concept of role differentiation is applied to the functional specialization of agencies in terms of direct services to clients, planning and coordination activities, and resource generation and distribution activities. In network terminology, however, a more generic set of terms can also be used to characterize the roles of the agency clusters in the two CSS networks. Burt (1978a) has identified four positions or roles that component units can play in any network structure. These positions are defined in terms of the relational patterns that occur among the agency clusters. Primary positions are those in which the incumbents are selected for interaction quite frequently by members of other clusters, but who initiate interaction only with other primary position incumbents. Isolate positions are those in which incumbents seldom initiate interaction with others and seldom have interactions initiated with them by occupants of other positions. Broker positions are those in which incumbent agencies are selected for interaction quite frequently by incumbents of other positions in the network and who also frequently initiate relations with incumbents of other positions. As their name implies, broker positions mediate relationships between other clusters. Sycophant positions are those in which the incumbents frequently initiate interaction with incumbents of other positions (especially primary positions) but who are seldom selected by members of other positions.

The presence of network hierarchy can be detected from the relationships among these positions. Networks that are hierarchially organized should reveal one central or primary position that dominates relationships for all other clusters. Furthermore, clusters peripheral to this dominant cluster should be linked in a tree-like fashion. Some of these peripheral clusters may themselves be primary positions relative to subsets of other clusters, but they are linked in a subordinate way to the dominate cluster. On the other hand, to the extent that there are multiple primary clusters not linked in any super or subordinate fashion, then the overall network can be characterized as relatively decentralized or nonhierarchially organized.

Given these distinctions, the pattern of direct linkages among the clusters in the institutional and community regions of the two CSS networks (figures 6-2 and 6-3) can

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be examined. At issue is the extent to which each region displayed evidence of the amount of role differentiation and hierarchy that would be expected of identifiable subsystems. The analysis that follows lacks a firm statistical basis; it represents a role-set analysis of the clusters based on observed patterns of the intercluster linkages in each network. Nonetheless, it nicely illustrates the analytical power of Burt's typology, and it yields insights that are consistent with conventional understandings of the structure of American mental health services. For expository and pedagogical reasons, the Schenectady network is examined first and the Syracuse network second.

In Schenectady, there was little evidence of functional differentiation or hierarchy within the institutional mental health or community-based service regions of the CSS network (figure 6-3). Virtually all the direct relationships were client-based; only three of the linkages involved planning/coordination or resource transactions. Furthermore, no single cluster dominated the relationships in either region. The institutional region encompassed one primary position (cluster 7), one broker (cluster 9), and two sycophant positions (clusters 8 and 11). The primary position was occupied by the CDPC-CSP core service agencies, which were chosen by clusters containing vocational rehabilitation, developmentally disabled, and mental health treatment/administration units. The broker position was occupied by the County Jail/Police Court; it was directly chosen by clusters 7 and 8 in the institutional region, and through its direct relationship with cluster 5, it linked the institutional and community-based service regions. The sycophant positions were occupied by mental health treatment/administration and the developmentally disabled clusters. These clusters tended to choose other members of the institutional region, but they received few choices in return.

The community-based services region in the Schenectady network was composed of two primary positions (clusters 4 and 5) and one sycophant position (cluster 3). The primary positions were occupied by a group of family service agencies and the Family Court/Probation Department. The sycophant position was occupied by a group of advocacy agencies. On the periphery of this region were two other clusters: cluster 2 (Visiting Nurses/City Health Department) and cluster 10 (City Mission/Carver Mental Health Center). Cluster 2 appeared to function in a sycophant position, whereas the position of cluster 10 was more indeterminate – it was somewhat primary in its balanced in and out choices, but it was clearly peripheral to the community-based services region. Cluster 1 (United Way/Salvation Army) appeared to function in a broker-like position for client referrals between the two regions in that it linked the cluster of developmentally disabled service agencies (institutional) to the Family Court/Probation Cluster (community-based).

Data were also examined on the extent to which the component relationships in each network were formalized and centralized. As noted earlier, most of the intercluster relationships in the Schenectady network were based on client transactions. In general, nearly all these client-based relations were based on verbal or informal agreements, and no interagency committees with binding decisionmaking powers were involved in these transactions. The only evidence for more formalized linkages was associated with the three relationships involving planning coordination or resource transactions. Each of these relationships was contractual or mandated, associated with

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moderately formalized interagency committees that had at least some binding decisionmaking power over the parties involved. Otherwise, relationships in both regions of the Schenectady CSS network were based on rather decentralized, ad hoc, client-based referral transactions. All of this suggests that intercluster and interagency coordination could only occur within a mutual adjustment framework.

In Syracuse, the agency composition of clusters in the institutional mental health and community-based services regions were similar to those in Schenectady, but the extent of their functional differentiation and hierarchy were quite different (figure 6-2). Of the 24 direct relationships between clusters in the Syracuse network, 63 percent were based on direct services to clients, 17 percent on planning/coordination activities, 17 percent on resource transactions, and 3 percent on a combination of clients and resources. Note, however, that all the relationships in the institutional mental health region were based on client transactions and all the planning/coordination and resource transactions occurred within the community-based services region. This pattern clearly suggests that the institutional region was much less functionally differentiated than the community region.

The institutional region encompassed one primary position (cluster 12) and four sycophant-like positions (clusters 5, 6, 7, and 13). Similar to the Schenectady network, the primary position was occupied by the CSP core service units, which in Syracuse were associated with the Hutchings Psychiatric Center. The sycophant positions were occupied by the County Jail and HPC Forensic Unit (cluster 5), a group of home care/rehabilitation agencies (cluster 6), the HPC Geriatric Treatment Units (cluster 7), and one of the HPC adult psychiatric units (cluster 13). The role relationships among these clusters were more suggestive of hierarchy than the counterpart clusters in the Schenectady institutional mental health region. The CSP cluster in Syracuse (cluster 12) appeared to dominate relationships with the sycophant positions. With the exception of the direct client referral linkages from cluster 6 to clusters 4 and 7, all the relationships between clusters in this region were centered on the CSP cluster.

The Syracuse community-based services region, however, revealed the most clear-cut evidence for systemic role differentiation. This region was composed of two primary positions (clusters 4 and 10), two broker positions (clusters 8 and 14), and two sycophant-like positions (clusters 3 and 9). The primary positions were occupied by a group of agencies providing shelter services (cluster 4) and by the NYS Regional Mental Health Office/County Department of Mental Health (cluster 10). The broker positions were occupied by the United Way/Mental Health Association (cluster 8) and by agencies providing vocational rehabiliation/general hospital psychiatric inpatient services (cluster 14). Finally, the sycophant positions were occupied by a group of family and crisis intervention services (cluster 3) and a group of advocacy/planning agencies (cluster 9). On the periphery of this region was another sycophant position (cluster 2) that was occupied by two alcohol rehabilitation/shelter agencies.

The major primary position was occupied by the State and county mental health offices. This position played the main planning/coordination role for the community-based services region. It was chosen for planning purposes by clusters 9 and 14 and for resource transactions by cluster 8. The shelter services in cluster 4 played a somewhat

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minor primary role; they chose cluster 8 for resource transactions and they were chosen by cluster 3 for client-related services, by cluster 8 for planning/coordination relations, and by cluster 6 (from the institutional region) for client-related services.

The two broker positions were similar in status. They mediated relationships within the community-based services region, but their role-sets were distinct. The United Way/Mental Health Association (cluster 8) served as the principal resource dispenser to other community clusters. It was chosen by clusters 3, 4, and 14 for resource transactions, and it chose cluster 4 for planning/coordination, cluster 9 for client-related services, and clusters 10 and 14 for resource transactions. The vocational rehabilitation/psychiatric inpatient cluster served as a broker for three of the other community-based clusters as well as for cluster 12 (CSP core agencies) in the institutional region. It was chosen by clusters 2, 3, and 10 for client-related services and by cluster 8 for resource transactions. In turn, it chose cluster 8 for resource transactions, cluster 10 for planning/coordination activities, and cluster 12 for client-related services. The two sycophants (clusters 3 and 9) chose other clusters for a combination of client, planning/coordination, and resource transactions.

While the community-based region had extensive role differentiation between clusters, there was little evidence for a clear hierarchy or dominance pattern. Each of the primary and broker positions had access to other positions in the region and no pattern of super or subordination was evident. This pattern of relationships was much more consistent with the characteristics of a decentralized rather than a hierarchial form of organization.

Further insights into the form of managed coordination between these clusters was developed by examining data on the extent to which direct relationships were formalized and centralized. In general, as might be anticipated on the basis of the above analyses, relationships among clusters in the community-based region were much more formalized and centralized than those in the institutional mental health sector. The planning/coordination linkages tended to be based on legal mandates, and they were governed by formal interagency committees with binding decisionmaking powers. Similarly the resource transactions were based on contracts or agreements that were subject to approval by formal committees with binding decision controls. Most of the client-related linkages, however, were based on ad hoc or informal agreements. There was little variation between the community and institutional regions in this regard.

Thus, while the institutional region in Syracuse had all the characteristics of coordination by mutual adjustment, the community-based region corresponded much more closely to an alliance form of coordination. This coordination strategy was epitomized by the organization of United Way or Community Chest agencies. While member agencies retained their autonomy as distinct organizations, their affiliation agreements with the United Way/Community Chest were governed by formalized committees with relatively centralized decision structures. This autonomy-dependency structure falls short of a corporate form of coordination in which member agencies are effectively brought under a single hierarchy of authority and cease to operate as autonomous entities. At the same time it allows for more standardized and deliberate decisionmaking than occurs in the mutual adjustment form of coordination whereby agencies negotiate their relationships on the basis of voluntary self-interest.

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Summary

The findings presented in this chapter indicate that intercluster relations in the Schenectady and Syracuse CSS networks were not overlayed by an identifiable systemic organization. Furthermore, little evidence for a corporate form of managed coordination was found in either network. The blockmodeling and MDS analyses suggested that both networks were partitioned into two distinct regions encompassing institutional mental health and community-based social services. Consistent with the results presented in chapter 5, the majority of intercluster relationships were based on direct client transactions. Although Schenectady had proportionately more resource flows than Syracuse when all interorganizational relationships in the network were considered (i.e., for both structurally equivalent and residual agencies), this situation was reversed when only the intercluster relationships were considered. Syracuse had many more intercluster planning/coordination as well as resource linkages, but all of these occurred in the community-based services region of the CSS networks.

While the existence of two distinct network regions suggested the possibility that each might operate as a subsystem, analyses of role differentiation and hierarchy indicated that (with the exception of the community-based region in Syracuse) most relationships relied upon informal, decentralized, client transactions. Overall, mutual adjustment seemed to be the characteristic mode of coordination. The Syracuse community-based region came closest to a subsystem configuration. Here, clear and differentiated functional roles were apparent (such as resource dispenser and planner/coordinator) and they relied upon more formalized (contractual or mandated) and more centralized (committee governed) mechanisms of coordination. Overall, this subsystem embodied many of the characteristics associated with the alliance form of managed coordination.

It is important to recognize, nonetheless, that the clusters in which CSP-affiliated agencies were located did play primary roles and served to link the institutional and community-based regions in each CSS network. In Syracuse, the CSP core services associated with the Hutchings Psychiatric Center played the dominant role in the institutional mental health sector, and CSP-colleague agencies (vocational rehabilitation programs) played both a primary role in the community-based region and a broker role between regions. In Schenectady, the CSP core services associated with the Capital District Psychiatric Center also played a primary role in the institutional mental health region. While none of the other CSP-affiliated agencies emerged in a prominent position for the community-based region, at least some indirect linkages between regions were associated with the CDPC-CSP units.

In effect, the network analyses reproduced the public-private mental health system fragmentation that is typical of most American communities. Historically, the chronically mentally ill have been an exclusive responsibility of State mental health agencies, while private and voluntary community agencies have concentrated on the care of less severely disabled clients (Morrissey et al. 1980; Morrissey 1982). The result has been two parallel but disconnected service delivery sectors. With deinstitutionalization and its associated policies concerning the community placement and rehabilitation of chronic mental patients, efforts such as the CSP initiative have been fostered to broach this historic chasm.

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While the evidence generated in this study indicated that CSP program planners in Schenectady and Syracuse had yet to develop an integrated system of community support services, this is not at all surprising. CSP efforts were not funded in anywhere near the levels that would be required to induce community agencies to reorient their commitments and priorities toward the chronically mentally ill. Lacking financial inducements and faced with a well entrenched structure of community agencies (each with access to its own sources of categoric funding), CSP planners have had to rely largely on voluntary coordination strategies. Such a situation is conducive to the perpetuation of mutual adjustment rather than the emergence of a corporate form of interagency coordination (Warren et al., 1974). Moreover, chronic mental patients may well be too narrow or too unattractive a target group for many community agencies. Under present funding circumstances, many agencies would be reluctant to commit their activities to this group at this risk of alienating other constituencies and jeopardizing other sources of support. In this context, the chronically mentally ill are unlikely to become the central principle upon which the entire mental health and community social services system can be effectively organized.

But what are the prospects and potential for further systemic development in either CSS network? While the opportunities for corporate integration are limited, the alliance model may well be a more realistic goal for CSP efforts in the future. Any forward movement in this direction, however, is highly contingent on the perceptions of network members regarding the effectiveness and worthwhileness of current interagency relationships. Perceived effectiveness plays a major role in the Van de Ven and Ferry framework. The evidence in this area for the Schenectady and Syracuse CSP networks is addressed next.

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7

PERCEIVED EFFECTIVENESS AND SYSTEM DEVELOPMENT PROBLEMS

This chapter focuses on the fourth issue associated with the research framework, namely, to what extent are system members satisfied with their interagency relationships? The issue of member satisfaction, or more broadly, perceived effectiveness, occupies a central position in Van de Ven and Ferry's (1980) explanation of the emergence and maintenance of interorganizational systems. They argue that the development of such systems does not occur in one fell swoop. Rather, they emerge incrementally and grow with small, successful encounters at coordination.

The findings reported in previous chapters indicated that the Schenectady and Syracuse CSS networks were composed predominately of client and information transactions that were coordinated on an informal basis, with little evidence of systemic role differentiation and hierarchy. Examining the effectiveness of network relationships as perceived by agencies helps define the extent to which opportunities exist for movement toward a more formally coordinated system of services for the chronically mentally ill in each community. The findings on interagency coordination problems and service gaps as perceived by agency representatives are reported here. To the extent that a consensus exists on the nature of these problems and gaps, then member agencies may focus their efforts on some collective action to alleviate them, as part of an incremental system development process.

Perceived Effectiveness of Network Relationships

Van de Ven and Ferry (1980) maintain that the development of networks of relations is driven by incremental variations in the perceived effectiveness of the existing network of relations. They define perceived effectiveness as the extent to which the parties involved in an interorganizational relationship perceive the other agency as carrying out its commitments and judge the relationship to be worthwhile, productive, and satisfying. In their view, what may start out as an interim solution to a problem or as an attempt to obtain a specific resource may eventually become a long-term, interorganizational commitment of resources if previous cycles in the process are perceived by the parties to have been successful or effective encounters. Specifically, hypothesis 5 states that, "the greater the perceived effectiveness of an interagency network at time 0, the greater the interdependence and issue commitment among the agencies at T + 1, over time periods 0, 1, 2, ... N" (Van de Ven and Ferry 1980, p. 309).

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This hypothesis implies a direct, linear relationship between the degree of perceived effectiveness and future coordinative efforts. That is, for all agencies in the network, the more relations are perceived as effective, the greater the interdependence and commitment to some common effort at some future time. This, in turn, implies a relatively undifferentiated network in which similar levels of perceived effectiveness will have similar impacts on interdependence and commitment throughout the network. But, as findings presented in the previous chapter have shown, the CSS networks in Schenectady and Syracuse did exhibit some differentiation; clusters of structurally equivalent agencies that were positioned in two densely interacting regions could be identified. Further, at least in Syracuse, these regions varied in terms of their level of organization, formalization, and centralization. This suggests that the proposed relationship between perceived effectiveness and future system development may not be constant or uniform throughout the entire network. Rather, it may vary in different regions of the CSS networks.

Without longitudinal data, the hypothesized relationship between perceived effectiveness and the status of system development at subsequent times for the Schenectady and Syracuse CSS networks cannot be tested. Rather, only the levels of perceived effectiveness with the interagency relationships in each network at the time of the cross-sectional survey can be examined. These data, however, permit speculation on the potential for further system development in each network.

Two types of comparisons were made to determine whether levels of perceived effectiveness varied within different segments of the network. First, the levels of perceived effectiveness were compared between the community and institutional regions of each network. Second, within regions the perceived effectiveness of the relations member agencies have with each other were compared to those they have with agencies outside the region. The first comparison shed light on the extent to which community versus institutional relationships were perceived as more effective, and the second indicated the extent to which relationships with other agencies in the same region were rated as more effective than those with external agencies. To the extent that differences do exist in these relationships, then the potential for system development may well be region-specific rather than uniform for the entire CSS network. [1]

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[1] It should be acknowledged that satisfaction measures may be highly susceptible to respondent "yeasaying" regardless of the actual quality of relationships with other agencies. While there is no direct way of evaluating this issue for the data collected in this study, the comparisons discussed in the text do provide an indirect way of discounting this bias. Namely, to the extent that significant between or within region differences are detected in levels of perceived effectiveness, then it may be assumed that respondents used discrimination in their response patterns.

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The perceived effectiveness data presented in this chapter were derived from a series of questions that asked respondents to rate each of their agency's interorganizational relationships in terms of four criteria: (1) whether the other agency "carries out the commitments it initially agreed to", (2) the "productiveness" of the relationship, (3) the "worthwhileness of the time and effort" spent in developing and maintaining the relationship, and (4) the "overall satisfaction" with the relationship (see appendix 1). Responses were scored on a 1 to 5 extent scale with 1 indicating to a very little extent and 5 indicating to a very great extent. Mean responses were computed on each item for all the relationships in each region of the two networks. All indices were available for the Syracuse network, but only the last two were included in the Schenectady study.

Beginning with table 7-1, it can be seen that the mean scores on each of the available effectiveness measures were rather high in each network (range = 3.91 to 4.41). It would appear that prospects for further system development were good in both networks, at least insofar as high levels of perceived effectiveness set the stage for an incremental growth in network relationships. The data in table 7-1 also suggest, however, that differences did exist between the institutional and community regions in both networks.

In Syracuse, the agencies in the institutional region perceived their relations as both more worthwhile and more satisfying than did the agencies in the community region ($p<.01$ and $<.05$, respectively). Similiar between-region differences also occurred for Schenectady, but only the difference on the extent to which relationships are perceived as satisfying approached statistical significance (p .06). The two additional perceived effectiveness measures available for Syracuse were also quite high, indicating that relationships were perceived as productive and that other agencies were perceived as carrying out their commitments. Here again, the average scores for the institutional region were higher than the community region on these measures, but the differences were not statistically significant. In general, then, while the data suggest that perceived effectiveness was high in both networks, it tended to be more pronounced in the institutional regions of each CSS network. If, as Van de Ven and Ferry (1980) suggest, there is a direct relationship between high levels of perceived effectiveness and system development, then the prospects for further system development would seem to be somewhat greater in the institutional as opposed to the community region in each CSS network.

It will be recalled from the MDS analyses presented in chapter 6 that the institutional regions were defined primarily by subunits of the Hutchings and Capital District Psychiatric Centers, which were the lead agencies in the local CSP demonstration projects. In Syracuse, 10 of the 13 agencies that formed the institutional region of the CSS network were subunits of the Hutchings Psychiatric Center and, in Schenectady, 5 of the 12 units in the institutional region were subunits of the Capital District Psychiatric Center. In both regions, therefore, these agencies were components of a larger organizational entity, and the high levels of perceived effectiveness were based largely on interunit working relationships. In effect, these units were already part of a formal organizational system. The other agencies in each region (county jails, other State agencies, or home care programs) were closely related

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Table 7-1. Levels of perceived effectiveness in the institutional and community regions of the Syracuse and Schenectady CSS networks

	SYRACUSE							SCHENECTADY						
	Institutional region			Community region				Institutional region			Community region			
Perceived effectiveness criteria	N	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$ Diff.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$ Diff
Worthwhile	63	4.41	.80	85	3.96	1.08	.45***	66	4.08	1.07	45	3.82	1.35	.26
Satisfying	63	4.06	.95	85	3.69	1.08	.37**	69	3.91	.97	45	3.53	1.12	.38*
Productive	63	4.00	.97	85	3.70	1.12	.30							
Commitments carried out	62	4.14	.72	79	4.21	.94	.07							

*** p<.01 ** p<.05 * p<.06

to the delivery of institutional mental health services, and they appeared to perceive their relationships with HPC/CDPC units as quite effective.

In each network, however, the community region was composed of a much more diverse set of agencies. In Schenectady, there were nine agencies grouped into three clusters: advocacy agencies, family service agencies, and family court/probation department. In Syracuse, there were a total of 17 agencies grouped into 6 distinct clusters: advocacy agencies, family service agencies, street agencies, the United Way and Mental Health Association, the regional office of the State mental health agency and the county department of mental health, and vocational service agencies. As described in chapter 6, the community region in Syracuse tended to reflect an alliance form of organization with clear patterns of role differentiation, whereas the corresponding region in Schenectady consisted primarily of an informally coordinated client referral subnetwork that was more closely related to the mutual adjustment form of organization.

Further evidence of the region-specific nature of the perceived effectiveness ratings can be gleaned from table 7-2. Here, the mean effectiveness ratings for relationships within regions versus those with external agencies were compared for each community.[2] It can be seen that there were few large differences between the two regions on each effectiveness measure. Of the 12 inside-outside region comparisons that can be made across the two communities, only 4 were large enough to attain statistical significance. Three of these four occurred in the community region in Syracuse, which suggests that within region relations were perceived as significantly more effective than outside-region relations for this group of agencies. The fourth statistically significant difference occurred in the institutional region in Schenectady. Here again, this comparison indicated that within-region relations were perceived as more effective (in this case, more worthwhile) than outside-region relations.

While the other comparisons identified in table 7-2 failed to attain statistical significance, the differences consistently indicated that within-region relations were almost always viewed as more effective than outside-region relations. Indeed, the 12 inside-outside comparisons (including the 4 just discussed) show that within-region relations were viewed in this way. In general, these findings lend credence to the view that system development, as it is promoted by high levels of perceived effectiveness, is likely to be region specific. This tendency could be highest in the community region in Syracuse where, for three of the four effectiveness measures, within-region relations were rated significantly higher than outside-region relations.

This chapter concludes with the findings relative to agency perceptions of community-wide coordination and service delivery problems. Although perceptions of relationship effectiveness may focus around a particular region in the network, perceptions of community-wide problems may transcend particular network regions. To the extent that consensually defined service delivery problems exist in each network, then a viable agenda may be formulated for further CSS development activities.

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[2] Outside region choices included choices to agencies in the other region as well as choices to residual or unclustered agencies.

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Table 7-2. **Levels of perceived effectiveness within and outside the institutional and community regions of the Syracuse and Schenectady CSS networks**

Perceived effectiveness criteria in Syracuse	Institutional							Community						
	Within region			Outside region				Within region			Outside region			
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$ Diff.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$ Diff
Extent Relations are...														
Worthwhile	26	4.50	.58	37	4.35	.92	.15	44	4.34	.80	41	3.56	1.20	.78**
Satisfying	26	4.15	.78	37	4.00	1.05	.15	44	4.07	.76	41	3.29	1.23	.78**
Productive	26	3.92	.98	37	4.05	.97	.13	44	4.11	.81	41	3.27	1.24	.84**
Commitments carried out	26	4.23	.59	36	4.08	.81.	15	43	4.32	.92	36	4.08	.97	.24
Perceived effectiveness criteria in Schenectady														
Extent Relations are...														
Worthwhile	24	4.54	.83	32	4.03	.99	.51*	17	3.59	1.32	28	3.96	1.37	.37
Satisfying	26	3.92	.84	33	3.88	1.17	.04	17	3.35	1.17	28	3.64	1.09	.29

** $p<.001$ * $p<.05$

92

System Development Problems

The generally high levels of perceived effectiveness in both CSS networks do not imply that few service delivery problems existed in these communities. The high levels of relationship effectiveness may only mean that agencies felt that what they were doing was the best that could be expected. Problems may exist in the delivery of services to the chronically mentally ill that are viewed as beyond the agency's ability to solve. Or, to the extent agencies embrace particularistic rather than systemwide goals, agencies may view their relations as effective for accomplishing their own self-interest goals even though systemwide problems exist.

As part of the survey of CSS agencies in Schenectady and Syracuse, information was obtained on each agency's perception of the extent to which 13 service delivery problems existed in each community. These problems focused on the adequacy of specific services (psychiatric, rehabilitation, and housing); the accessibility and continuity of service delivery; coordination and competition problems in service delivery, formal planning, and policymaking; availability of funding; and client advocacy. The respondent from each agency rated each of the 13 items on a 1 to 5 scale ranging from 1, no problem, to 5, very much of a problem.

Initially, the mean responses were analyzed on each item for the agencies in the institutional and community regions in the two CSS networks. With a few exceptions, the scores revealed no significant differences.[3] In other words, the responses tended to be quite similiar regardless of regional location. Accordingly, to simplify the presentation and analysis of the data, the mean scores for total number of agencies in each network were compared (see table 7-3). The intent was to discern the nature of the service delivery problems that were identified in each network as a way of drawing inferences about areas requiring collective action by member agencies if services were to be better coordinated on behalf of the chronically mentally ill.

The data presented in table 7-3 indicate a number of commonalities and differences in the extent to which particular issues were viewed as problematic by the agencies in each network. There appeared to be general agreement that psychiatric and rehabilitation services along with formal planning/coordination were adequate in both networks but that the levels of funding and advocacy for the mentally ill were relatively inadequate. In addition, agencies in both networks reported that clients requiring multiple services often fell into the cracks between agencies.

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[3] There were significant differences at the .05 level between the institutional and community regions in Schenectady on the following four problem variables: (1) the extent mental health services were inaccessible, (2) the extent multiple service clients fell into cracks between agencies, (3) the extent quality of mental health services was less than adequate, and (4) the extent eligibility requirements were too rigid. In all cases, agencies in the community region perceived these issues as more problematic than the agencies in the institutional region. No significant differences occurred between regions in Syracuse on any of the problem variables.

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Table 7-3. System development problems in the Syracuse and Schenectady CSS networks

System development problems	SYRACUSE $\bar{X}$	SYRACUSE SD	SCHENECTADY $\bar{X}$	SCHENECTADY SD	$\bar{X}$ Diff.
Extent that there is...					
Lack of psychiatric services	2.62	1.04	2.50	1.58	.12
Lack of rehabilitation services	2.67	1.01	2.67	1.54	0
Lack of housing services	3.68	1.18	2.81	1.31	.87**
Lack of coordination at the service level	3.51	1.25	2.64	1.14	.87**
Inaccessible mental health services	2.78	1.08	2.50	1.39	.28
A problem of persons requiring multiple services who "fall into the cracks" between agencies	3.91	1.08	3.36	1.26	.55*
Less than adequate quality of mental health services	2.67	1.09	2.25	1.38	.42
A problem of eligibility requirements being too rigid	3.17	1.33	2.84	1.64	.33
Less than adequate funding	3.45	1.23	3.29	1.46	.16
Competition among policymakers	3.23	1.49	2.66	1.33	.57*
Lack of a formal planning process	2.84	1.32	2.98	1.49	.14
Lack of unified public voice to advocate for the mentally ill	3.33	1.28	3.43	1.42	.10
Lack of coordination at the planning level	2.88	1.59	3.00	1.46	.12

* $p<.05$ ** $p<.001$

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Four particular issues were rated as much more problematic in Syracuse than in Schenectady. These were housing services, coordination at the direct service level, competition among policymakers, and multiple problem clients falling between agencies. The mean differences on each of these items were statistically significant at the .05 level or beyond.

In general, this pattern of results was consistent with the findings reported in earlier chapters. Both networks had funding and coordination problems that correspond to the fragmentation and informal agreements identified in the network and MDS analyses. The problem of service discontinuity for multiple needs clients was also understandable in the context of the relative isolation of the institutional mental health and community-based social service regions identified in each network. It appeared, however, that a number of service coordination problems were much more acute in the Syracuse network. While the specific reasons for these differences were not clear, they may well have been a function of the larger and more complex array of services in that community.

Whether the combination of relationship effectiveness and agreement on these service delivery problems will provide an impetus for further efforts at system articulation and more formal coordination mechanisms cannot be addressed with the data available from this study. High levels of perceived effectiveness may lead to contentment with the status quo and an avoidance of service delivery problems as well as providing an impetus for more cohesive network relationships. Only with longitudinal data can the Van de Ven and Ferry thesis that successful interagency relationships will lead to greater interdependencies and systemic development be fully evaluated.

Summary

This chapter concludes the analysis of the systems aspects of the interorganizational relationships in the Schenectady and Syracuse CSS networks. The findings have been presented on the perceived effectiveness of relationships within the institutional and community regions of the Schenectady and Syracuse CSS networks along with a profile of the services coordination and system development problems in each network as perceived by member agencies. In general, the findings indicated that relationships were perceived as highly effective in both networks, especially within the institutional mental health services regions. On the basis of Van de Ven and Ferry's theoretical framework, the high levels of perceived effectiveness provided a basis for further incremental growth within the regions of each network, but the opportunities for networkwide system development were uncertain.

The results of analysis of the service delivery problems perceived by member agencies tended to confirm the pattern of findings that emerged from the network and systems assessments presented in earlier chapters. Each network has emerged as a rather fragmented, decentralized, and informally coordinated array of agencies engaged primarily in client and information flows. With the exception of the perceived deficit in housing by CSS agencies in Syracuse, services for the chronically mentally ill were not rated as particularly problematic in either network. Rather, the major problems

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appeared to be associated with the lack of adequate funding and advocacy. In addition, a series of service delivery problems were rated as much more intense in the Syracuse CSS network. These included the need for coordination at the direct service level, service discontinuities between providers, and competition among policymakers. The existence of these consensually defined problems provides an agenda for further collection action and system development within each network.

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8

NETWORK APPROACHES TO MENTAL HEALTH SERVICE SYSTEM RESEARCH: RETROSPECT AND PROSPECT

The primary goal of the research presented in this volume was to illustrate the ways in which interorganizational theory and social network analysis techniques can be used to study mental health service delivery systems. While this work was primarily methodological in nature and limited to cross-sectional data from two local Community Support Program Demonstration Projects, a number of insights were developed about the refinement of the theory and methods that guided the research, the viability of the systems goals of the CSP initiative, and the kinds of research studies that need to be undertaken to evaluate their attainment and ultimate impact on the quality of life of the chronically mentally ill in community settings. This concluding chapter presents a summary of the key findings and then discusses the implications of the work in each of these areas.

Summary of Key Findings

The basic findings from the analysis of the level of CSS development in Schenectady and Syracuse field sites can be summarized as follows:

1. Situational preconditions for the emergence of interorganizational resource flows were moderately high in both communities. These situational factors included the extent of interagency resource dependence, domain similarity, domain consensus, awareness, and network size. While several between-community differences were detected, the overall level of these situational factors suggested that a basis for interorganizational resource flows did exist in each community.

2. The actual patterns of resource flows indicated that client and information linkages predominated in each CSS network but, relatively speaking, the Schenectady network appeared to have a greater intensity as evidenced by a larger proportion of funding-related transactions.

3. The structure of resource flows in each CSS network was highly complex and fragmented. A relatively large number of structurally equivalent agency clusters was detected (11 in Schenectady and 14 in Syracuse), but the majority of network agencies fell outside these structural groupings. In each CSS network, the types of agencies in the structurally equivalent clusters were remarkably similar.

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4. Consistent with the finding of rather low intensity of resource flows (see 2 above), the relationships in both networks revealed little formalization or centralization. Many linkages were not associated with any explicit interagency agreements, and where such agreements did exist, they tended to be verbal as opposed to written, contractual, or mandated. Similarly, relatively few of the relationships were associated with formal interagency committees that had binding decisionmaking authority over the participants. In general, the structural characteristics of each CSS network corresponded to the mutual adjustment rather than the corporate form of coordination envisioned in NIMH guidelines for CSS development.

5. The system-level analysis of intercluster relationships revealed two distinct regions in each CSS network. These regions consisted of institutional mental health and community-based service agencies; similar types of agencies from each community were located in each region. Further, most of the intercluster linkages were region-specific, indicating that each region operated largely independently of the other. In this sense, the findings reproduced the dual systems of institutional and community services often depicted in the mental health services literature.

6. An examination of the patterns of role differentiation and hierarchy among clusters found little evidence of systemness in either CSS network. The majority of relationships in Schenectady and in the institutional region of the Syracuse network were based primarily on client referrals. Only in the community services region of the Syracuse CSS network was there evidence of systemic role differentiation involving primary clusters engaged in funding, planning-coordination, and client flows. Relatively speaking, however, this region was nonhierarchially organized and corresponded to the alliance form of managed coordination.

7. In both CSS networks, the clusters containing CSP-affiliated agencies did appear to play primary roles in their respective regions, and these clusters were involved in brokering or linking the two regions. Thus, while there was little evidence for the existence of a formally coordinated system of services for the chronically mentally ill in either community, the CSP-affiliated agencies did play a role in connecting two otherwise disjointed agency sectors.

8. The level of perceived effectiveness of interagency relationships was quite high within each region of the two CSS networks. This implies that opportunities do exist for further system articulation/development within regions of the CSS networks in both communities. Whether this also suggests that conditions are ripe for further linkages between regions cannot be fully answered from these data.

9. The assessment of systems development problems in each community, however, did indicate a broad consensus on the issues requiring interagency attention. To a large extent, these issues involved improved linkages among

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existing agencies rather than the need for additional agencies/services. Only in Syracuse was a service-related deficiency (lack of housing) seen as a major problem. Otherwise, systems development problems were associated with the need for continuity of care, additional funding, client advocacy, and coordination. In general, these problems tended to be more pronounced for the Syracuse than the Schenectady CSS network.

Theoretical Implications

The use of interorganizational theory and network analytic techniques to assess interagency structures in the Schenectady and Syracuse CSP demonstration sites has yielded information of interest to both the CSP program evaluator and the interorganizational theorist. A strong point of Van de Ven and Ferry's (1980) theory is that it specifically addresses the processes of interorganizational network emergence and maintenance. It provides a role for the existing organizational context and distinguishes aspects of the emergent network in system terms. It also provides a motor for system change – perceived effectiveness. This research was guided by the logic and hypotheses of this theory, and the results lead to some preliminary conclusions about the theory and its operational measures.

Situational Factors. The theory provides specific reference to the characteristics of the community from which systematic interrelationships can develop. Assumptions regarding the motivation and direction of action by organizational actors are given. The problem can be directly stated: Given that organizations prefer to maximize their autonomy of action, what conditions must pertain in order for organizations to accept some degree of constraint? The situational factors suggested by Van de Ven are attempts to answer this question. The argument is that resource dependence, willingness to respond to external issues, awareness, consensus, and domain similarity represent conditions that determine the degree of constraint (interorganizational participation) that an agency will accept.

This research indicates that these situational factors can be used in a general way to set upper limits on the degree of network interconnection. They are not nearly precise enough, however, to make more than directional conclusions (e.g., this situational factor will/will not be favorable to the development of interorganizational resource flows). The relationships between different situational factors also require further specification. For instance, what is the net effect on network development to be predicted from observing high consensus but low awareness, as was the case in Syracuse? If, as appears to be the case, these situational factors are independent of one another, then a way is needed to predict how the individual factors are related to each other and how they interact during the formation of network relationships.

As far back as the seminal work of Levine and White (1961) and continuing through the work of Aiken and Hage (1968), Benson (1975), Cook (1977), Aldrich (1979), and Galaskiewicz (1979), the interorganizational literature has indicated the importance of resource dependence for the prediction of interorganizational relations. The greater the degree of resource dependence, the more likely that interorganizational relations

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will occur. However, exchange theories emphasize two sorts of dependence that emphasize both the economics of intranetwork exchanges and the comparison level for alternative exchanges outside the network. As long as exchange costs are lower within than outside the network, this is where exchanges will occur. However, as the terms of exchange within the network are altered by events within the network, the attraction of extra-network resources can also change. For instance, many community-based organizations receive part or all of their funding through categorical programs that originate at the Federal or State levels. This situational characteristic reduces the dependency of member agencies on intranetwork funding exchanges which, in turn, diminishes the prospects for the formation of a tightly linked network. Clearly, to account for this situational factor the theory must determine the degree to which all resources (particularly financial) are located in the community. Such a determination will provide a basis for predicting the degree of agency involvement in the local network. The importance of boundary setting or defining what is inside and what is outside the network is crucial here as well. Organizations may be dependent on intranetwork sources for some of their resources, but this proportion may be small relative to outside (categorical) resources that are not included within the boundaries of the network.

Notions of political economy (Benson 1975) and dominant coalitions (Pennings and Goodman 1977) also suggest that the early location of power within the network should be attempted. For example, the Syracuse CSS network contained several relatively powerful, stable community agencies that represented the existing power structure in Syracuse. The entrance of CSP organizing efforts must take into account their potential to disrupt or threaten these preexisting power relations. Therefore, an assessment of such conditions must be included in any depiction of situational factors that will affect network formation. In fact, organizations do not operate under free market conditions in selecting their organizational associates. The Van de Ven model suggests a voluntary commitment based on economically rational calculations as a basis for entering into exchange relations. It is clear that power relations among actors must also be identified as a precondition for further network development.

With regard to the extra-community environment, the Van de Ven framework (and for that matter, much of the foundational theorizing on interorganizational relationships) is especially deficient. The theory emphasizes the lateral (community based) as opposed to the vertical (society based) aspects of interorganizational networks. Community sociologists have long recognized that the idea of the local community as an autonomous or self-directed entity is a nostalgic imagery out of synch with the realities of advanced industrial societies (e.g., Warren 1972). Rather, much of what occurs on the local community level is derivative or reactive to events and forces operative at the macrosocietal level of organization. Thus, to understand fully the structure and dynamics of local interorganizational fields, theory and research must address the wider societal context in which these fields are situated. Yet only recently have organizational theorists begun to conceptualize the vertical linkages at the State and national levels that shape and limit the opportunity structure for community interorganizational networks (Benson 1982; Meyer and Scott 1983).

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In this research, the relevance of the vertical environment was deflected in part because both field sites were located in one State and thus they were exposed to basically the same set of external contingencies. At a more fundamental level, however, the data collection phase of the study was not sufficiently attuned to the importance of these external influences. Nonetheless, one only has to scratch the surface of the political economy of mental health services in New York State and the nation as a whole to begin to appreciate the significance of these extra-local forces.

A time-tested aphorism in human services delivery is that "programs follow the dollars." That is, the configuration of services at any given time is more a function of available financing mechanisms (and their associated incentives and disincentives) than any rational assessment of client needs. Grob (1983), for example, points out that an unanticipated consequence of the State assumption of control over public mental hospitals in the decades following 1890 was that fiscal incentives were created for the transfer of costs for the aged and senile from county to State budgets. The result was a rapid growth of State mental hospital populations in the early 1900s and the concomitant decline of county almshouses. Others have used the same principle to explain the rapid deinstitutionalization of State mental hospitals in the years following the enactment of the Medicare-Medicaid legislation in 1965 that created fiscal incentives for the transfer of many mental patients to nursing homes and community residences. Thereby, a substantial portion of the costs for their care shifted from States to the Federal budget (e.g., Morrissey 1982; Morrissey and Goldman 1984).

Currently, the financing of mental health services in New York State comes from nearly two dozen Federal, State, and local funding sources with diverse and complex formulas, methods, and eligibility requirements (Governor's Health Advisory Council 1984). This fiscal structure serves to diffuse program accountability while simultaneously freeing local service providers from becoming overdependent on any single categorical funding source. Moreover, concurrent with the startup of the NIMH-CSP initiative, New York State launched a major new categorical funding program to finance services for the chronically mentally ill in communities throughout the State. In 1978, $3.4 million was appropriated for these services, and by 1984, the appropriation amounted to nearly $40 million. In constrast, the CSP program only covered the administrative costs of the core service agency in each demonstration site, with no funding for direct services for CSS agencies. As a consequence, many local CSS agencies had access to sizable amounts of direct State funding, which served to diminish their dependency or allegiance with the system development aspiration of CSP planners.

By reducing the dependency of CSS agencies on intra-network funding exchanges, these fiscal incentives also diminished the prospects for the formation of a tightly linked network. This is one example of the power of extra-community factors in shaping the opportunities for system emergence at the local level. Clearly, to account for this situation, the Van de Ven and Ferry theory must be expanded to encompass the vertical, as well as the lateral, dimensions of interorganizational networks. By determining the degree to which all resources (particularly financial) are located in the community, a firmer basis for predicting the degree of agency involvement in the local network will be available. The importance of boundary setting or defining what is

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inside and what is outside the network is crucial here as well. Organizations may be dependent on intranetwork sources for some of their resources, but this proportion may be small relative to outside (categorical) resources.

The Pattern of Resource Flows. As Hall (1982) points out, there are several plausible causal specifications of the relationship between the environment, the organization, and interorganizational networks, and the cross-sectional data gathered in this study cannot adjudicate among them. Nevertheless, speculation concerning these relationships is almost irresistable. Van de Ven and Ferry offer several hypotheses which, if not causal, suggest an association between situational factors and network properties. The finding that each situational factor is probably independent of the others suggests that these hypotheses are too simple. For example, hypothesis 1 states that intensity is directly related to resource dependence, awareness, willingness to respond to external issues, and consensus. Yet in the Syracuse network, consensus was high, but awareness was low. How do these findings fit into the hypothesis? It is simply not clear how variations in these situational factors affect each other as they collectively predict intensity. This argument can be extended to each hypothesis predicting a relationship to more than one situational variable at a time.

Hypothesis 3 – the greater the number of agencies in a network, the greater the formalization, centralization, and complexity of the network – should perhaps be restated. From the perspective of emergence and maintenance, the hypothesis ought to state that the larger the network, the greater the need for formalization, etc. This is a small but important critique because it helps to explain the difficulty that larger groups of actors have in coordinating their behavior.

Van de Ven and Ferry suggest four dimensions to characterize the structure of resource flows: intensity, complexity, formalization, and centralization. Two of the four dimensions, intensity and complexity, are related to resource flows per se and two, formalization and centralization, to the organization of these flows. In fact, it is the first two that, in network analytic terms, provide the structure of the network. Formalization and centralization can be used to estimate the degree to which the network is coordinated. This observation leads to a consideration of how to capture systemness in these networks.

Levels of Coordination. The notion that formalization and centralization reflect the degree to which resource flows are organized is consistent with the use of the Whetten (1981) and Mulford and Rogers (1982) continuum of levels of coordination. The problem with this framework is that there is no way of evaluating a satisfactory endpoint short of full centralization and formalization, or, in other terms, the corporate strategy. Mulford and Rogers (1982, p. 17) are aware that there is no one best way to organize. They indicate that the coordination achieved at the adjustment and alliance levels may be adequate in some cases, but it is much easier to identify the appearance of corporate structure than these other types. No highly centralized, formalized, or corporate system was found in Schenectady or Syracuse, but it was also clear that some degree of organization was present in both networks. The criteria for unambiguously placing networks in the adjustment or alliance category are difficult to discern. The alliance category, in particular, seems to be an extremely broad middle ground.

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The resolution of this problem is extremely important to such projects as the CSP. The references to formal systems, etc., in CSP documentation were interpreted to indicate that formalized systems were a long-term goal of the CSP effort. This type of system, however, is difficult to develop, difficult to maintain, and probably not appropriate in many communities. This leaves no clear set of outcome standards against which to assess the current levels of network coordination.

The assessment of perceived effectiveness and the extent of perceived service delivery problems provides one way of generating such a standard. By this logic high satisfaction with the network may be taken as the endpoint of coordination development rather than as a stimulant for further growth toward formalized systems. Without longitudinal data, however, it cannot be known whether high perceived effectiveness provides an opening for further development or a good stopping point. Too, if situational factors are not high, then the effectiveness achieved may be at the limit of what is possible without resulting in much coordination at any level. If actors in a community are not highly committed to organizing among themselves, for example, then they may be satisfied with very low levels of system integration because that is consistent with their organizational self-interests.

Perceived effectiveness seems to be a weak construct to employ as the predictor of change in the network. It is difficult to measure, of course, but it is also a cognitive rather than a behavioral basis for network growth and seems, therefore, an unlikely motor for change. It seems just as likely that dissatisfaction will motivate change. This recalls Tessler and Goldman's (1982) assertion that attempts to organize an entire community around the needs of a small client subpopulation may be an insufficient basis on which to build. If organizations strive to maintain their autonomy, then a more adequate argument is required for predicting further willingness to give up autonomy as part of an organized system.

The problem of specifying degree of organization without resorting to high formalization and centralization and effectiveness is, of course, one that has bedeviled organization theory for quite some time (Hall 1982). It is clear the problem persists for interorganizational theory as well. The above discussion can be summarized by reiterating that there is a notable advantage to viewing interorganizational relations from a developmental perspective, particularly in instances where a systematic pattern of relations may not be present. In general, the Van de Ven framework appears to be well based in organization theory and to map onto empirical assessments. The research problem addressed here (the status of interorganizational relations in two CSP demonstration communities) has indicated where more detailed specifications of relationships between variables will be required.

Several more general theoretical issues were isolated that must be addressed by organizational theorists. Specifically, these issues include how to set and justify network boundaries, the role of preexisting power relationships in the formation of networks, a definition of coordination that is not dependent on formalization and centralization (the corporate strategy) as the endpoint of systems development processes, and a more substantial change agent.

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This research represents a nice marriage of theoretical and applied issues and has led to insights that could not be derived exclusively from either independent theorizing or simple data analysis or case studies. It explores the utility of theory and methods regarding interorganizational behavior as much as it addresses open questions concerning the programmatic pathways to coordinated service delivery systems for the chronically mentally ill.

Methodological Implications

The framework and results reported in the preceeding chapters have been guided by a variety of methodological considerations. As with any other type of research, a number of decisions must be made at each step of the network research process. Perhaps more so than with other types of research, the decisions made at each step of the network research process drastically affect the decisions that are made at subsequent stages. In combination with the fact that methods in the field of network research are still at an exploratory stage, it is clear that the analyst is faced with many important issues. The purpose of this section is to discuss some of the sampling, measurement, and analysis issues that inevitably arise in network research and to make suggestions on the basis this study.

Sampling. There are typically two important sampling issues that must be addressed in this type of research. The first involves the selection of agencies in the community to be included in the study. The second is the problem of which members of the organizations selected should be contacted in order to solicit data about the agency and its relations.

The issue of selecting the agencies for a study is often termed the boundary specification issue. A key informant strategy was used in both communities to identify the agencies involved in the provision of mental health and social support services to the chronically mentally ill. Bounding the network in this way reasonably assured inclusion of the major agencies relevant to the CSP initiative in both communities in the study. Others may disagree, and this underlines the problem. The key informants seemed able to easily identify the key actors in the community. It cannot be stressed too much that bounding the network is a critical step in the research. Since this step, in effect, initially defines the composition of the network, it determines which agencies are included in data collection and in subsequent analyses. In an important sense, from this point on, what one sees, or fails to see, is a function of this initial step. Particularly if important agencies are not included in the study, the network has been misspecified and the results are distorted.

Having selected the agencies to be included, the next step in the research process is to obtain information about each agency's relationships with other members of the network. A representative (most often the director or program director) from each agency was interviewed to obtain data. An important issue is whether single or multiple respondents from each agency are contacted. Multiple respondents provide one with the advantage of acquiring information from different levels in the organization. This is desirable, but those using this technique should be aware that one

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must somehow derive an organizational score on each variable from these multiple respondents. The most optimum way to do this is subject to debate.

Most analysts also suggest that each agency respondent should be asked to provide information regarding his/her agency's relations with all other agencies in the network. In this way, the most complete information regarding the agency's relations with all others can be gained. However, if a large number of agencies are included in the study and if the respondent is asked to provide a great deal of information about each relationship (as was the case in this study), this practice may not be feasible. Following Van de Ven and Ferry's convention, the number of other agencies that the respondent was to provide information about was limited to five. While this approach yields incomplete data about all interorganizational linkages, it does lead to the identification of the most critical relationships in a network. However, if the amount of information required about each relationship is not extensive, inquiring about all the agency's relations would be the optimal strategy.

Measurement. Many of the measures employed in this study were derived from the work of Van de Ven and his colleagues (most fully reported in Van de Ven and Ferry 1980). The use of these measures engendered little or no confusion from the respondents. The various questions seemed to make sense, and respondents generally had little trouble answering them. This is particularly important when the researcher attempts to ask a fairly large number of questions about each interagency relationship. In this case, not only is respondent fatigue minimized, but one can also have more confidence in the information obtained.

The measures were based on the subjective reports of agency respondents. The validity and reliability of these measures have been assessed by Van de Ven and Ferry (1980) in studies of human services organizations and have been found to meet acceptable standards. Indeed, these measures have received more such scrutiny than most other available measures in the field. Objective measures (such as information based on agency reports, public documents, or direct researcher observations of the agency characteristics or relations with others) are both difficult to use and quite time consuming when a large number of agencies are included in the study. To the extent the researcher has the resources to collect objective information about variables of interest, he or she should do so. In fact, collecting such information, in combination with the measures utilized here, would be the optimum strategy.

Analysis. Many of the analyses performed in this study were done at the network level. In order to do such analyses, it is necessary to gain access to specialized computer programs. This study used the STRUCTURE program (PISA 1977) as its primary analysis tool; in addition, a multidimensional scaling program, SOCK, was also used (Alba and Guttman 1972). Both are very user oriented and not difficult to use. These computer programs (or analogous procedures) are available for use at many universities.

Perhaps one of the major implications of this work is that the analyses of the network in terms of structural equivalence and in terms of multidimensional scaling routines are complementary. The structural equivalence program identified important

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clusters of agencies, while the multidimensional scaling routine helped to determine the role these clusters play in the larger network. Both types of information are quite important in helping to answer the question of the degree of system development of the network. Although neither technique offers any definitive answer to this question, the techniques used in conjunction do provide useful insights into the question. It should be recognized that since each technique provides slightly different types of information, each may provide a slightly different picture of the network.

For the analyst who is interested in analyzing multiple networks simultaneously, the structural equivalence approach does provide a distinct advantage. The STRUCTURE program has the capability to perform a blockmodel analysis of multiple networks. Thus, one can investigate the extent to which clusters of agencies have relations with one another across more than one network.

Limitations of the Network Approach

Readers of this report who are interested in the problem of constructing appropriate community-based mental health systems but are not primarily concerned with the theory and methods of interorganizational analysis per se might find fault with some of the assumptions and descriptions contained here. A few retrospective comments on the limitations of the network approach are, therefore, appropriate here.

First, the network approach is concerned with the problem of describing the structure of interorganizational relationships. It is evaluative only in the sense that it reflects or describes this structure. The analysis cannot, in itself, indicate whether one structure works better than another. Because the theory and methods assess structure, they cannot be presumed to provide a complete answer to all the questions regarding the formation and maintenance of community-based service systems nor to provide information regarding motives, perceptions, political calculations, costs/benefits, or client/community outcomes.

Secondly, the approach does not truly explain the microprocesses of network formation. That is, it does not indicate what specific strategies should be followed to establish or maintain interorganizational linkages, nor does it suggest how to further develop the network in desirable directions.

Third, in theory the techniques can be used longitudinally to depict trends in the structural development of a given network. But in practice this may be difficult. Agency missions may change and so may the prominence of actors. Some organizations in the original network will disappear from the network entirely, some will merge with other agencies, and some will simply cease to operate. Recapturing the appropriate universe of agencies, therefore, may be very difficult.

Fourth, the results are highly dependent on how the boundaries are drawn and on what resource exchanges will be assessed. For instance, the present study did not include Federal or State CSP project offices nor an exhaustive array of Federal and State funding sources. Nor were the exchange of friendship choices, personnel, or the

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types of information transmitted examined. The boundary drawn and the resource exchanges examined, of course, will influence the conclusions drawn from analysis. They do not invalidate results, but serve as reminders of the limits of what can be inferred from any particular set of findings.

For those readers who do take exception to assumptions and procedures used in this study, it should also be apparent that it successfully demonstrated the use of the network analytic method and underlying theory and that the approach provides a means of evaluating the structure of networks that, coupled with other considerations, allows one to assess some systematic properties of community-based service systems.

Implications for CSS Development Strategies

While the generalizability and utility of this research rests primarily with the concepts and methods employed rather than with the specific findings enumerated above, these findings do provide a basis for commenting upon several aspects of the system development goals advocated in existing program guidelines (NIMH 1980). As described by Tessler and Goldman (1982, p. 63), the logic of the CSP initiative

> . . .encompasses a variety of multilevel interventions which address a broad array of objectives. Systems change outcomes are sought and these are assumed to lead sequentially to the development of Community Support Systems, service improvement, and ultimately to improvement in the quality of life of the chronically mentally ill.

This research has focused on a limited aspect of these objectives, namely, ways of assessing the level of CSS development. Consequently, it provides no empirical basis for commenting upon the extent to which a system of services actually leads to improvements in client functioning or quality of life. Rather, the implications of these findings relate to the feasibility of attaining a highly formalized or corporate system of community support services, given the organizational ecology of human service agencies and the limited financial incentives associated with the CSP initiative.

According to the Van de Ven and Ferry (1980) theoretical framework that guided this research, opportunities for the emergence of corporate-like systems are highly dependent upon the structure of resource flows in an interagency network. Consistent with this formalization, the findings for the Schenectady and Syracuse CSS networks revealed that a low density (or intensity) of resource flows corresponded with low levels of formalization and centralization of interorganizational relationships. The interdependency between systemic organization and resource flows calls into question a central aspect of CSP development policy. The CSP initiative provides funding only for the administrative costs of the core service agency. It does not provide direct financial incentives for agencies to reorient services toward the chronically mentally ill, and it leaves their existing block and categorical funding structures intact. The plausibility analysis of the CSP strategy reported in Tessler and Goldman (1982) suggests that, without financial leverage points to induce local agency collaboration, the systems

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development goals may well be unattainable. This seems to be a well-taken concern based on these findings.

A related issue raised by Tessler and Goldman (1982) is the feasibility of attaining community-wide interagency coordination around the chronically mentally ill as a target population. The chronically mentally ill comprise only a small minority of the aggregate human services clientele (though they may consume a disproportionate share of services), yet the service needs of this group are expected by CSP developers to form the basis for a community-wide interagency system. Here again, these findings call into question the logic for expecting a highly formalized system of services focused on this client subgroup.

In the absence of a major restructuring of the ways CSS agencies are funded, mental health planners must consider alternatives to corporate systems (high formalization and centralization) as a strategy for organizing services and agencies for the chronically mentally ill. Many factors suggest that the corporate form of coordination is an unrealistic goal in urban areas such as Schenectady and Syracuse where there are a large number of diverse service providers. The ecology of separate funding sources and multiple client groups which are characteristic of urban communities, will continue to inhibit a full merger or integration of all community-based mental health and psychosocial rehabilitation agencies that serve the chronically mentally ill. The prospects for corporate-like delivery systems for the chronically mentally ill may be greater in rural areas where there are fewer providers and fewer contested domains. In such environments, Community Mental Health Centers have often been created as self-contained delivery systems providing all the mental health and social rehabilitation services. To the extent that these CMHCs or other types of multiservice centers assume primary responsibility for support services to chronic mental patients, then a corporate-like structure with central decisionmaking authority and formal coordination mechanisms may well be a realistic approach. The general point, however, is that the corporate structure is not a viable goal in all community settings and that alternative arrangements for meeting the service delivery and social support needs of the chronically mentally ill must be explored.

Can the service needs of the chronically mentally ill be effectively met on bases other than formal binding agreements between agencies? One alternative is the informal resources exchange network advocated by Sarason and his colleagues (Sarason et al. 1977; Sarason and Lorentz 1979). Drawing upon the experiences of advocacy and self-help groups in a variety of settings (such as dependent client groups, environmental watch-dogging, food cooperatives, and women's groups), Sarason champions the value of informal networking as a mechanism for supplementing or compensating for the deficiencies of traditional agencies. Sarason and Lorentz (1979, p. 9) call attention to "... the staggeringly self-defeating ways in which formal human service agencies define resources, are unable to consider/participate in meaningful exchange with each other, are in competition with each other for resources and survival, and manage to subvert efforts of coordination even when those efforts are powered by sizable amounts of money."

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The concept of a resource exchange network represents an explicit critique of the excessive professionalism and specialization of human service agencies and a strategy for working within and around these agencies. It is defined as

> . . .a voluntary, loose association of heterogeneous individuals willing to consider ways whereby each is willing to give and to get needed resources from others, to seek to increase the number and diversity of participants, to place no restrictions on the substance or foci of exchanges, and to resist putting the considerations of exchange and planning under the pressures of funding and the calendar (Sarason and Lorentz 1979, p. 178).

In the mental health area, the National Alliances for the Mentally Ill represents one of the newest and most aggressive client advocacy networks of this type.

Sarason and his colleagues recognize the formidable obstacles that arise in attempting to create such network processes among formal organizations. Indeed, two different principles of organization are juxtaposed in such efforts – one based on informal, voluntary, and primary group relationships and the other based on formal, mandated, and hierarchial relationships. The balancing of these two competing principles and forms has been the subject of considerable concern among organizational theorists, most notably in the work of Eugene Litwak (see Litwak and Rothman 1970). As a compromise, Sarason and Lorentz (1979) call for the creation of a resource exchange ombudsman to broker relationships among formal organizations and informal resource exchange networks, a role that is akin to the case manager in community support services for the chronically mentally ill (Sanborn 1983).

Whether such roles and informal networks can help to reorient existing service providers to meet the needs of chronic mentally ill persons is a topic requiring further research. It is clear, however, that future planning efforts must explore the ways in which both formal and informal coordination mechanisms can be incorporated in CSS development strategies.

Directions for Further Research

The theoretical concepts and methods of data collection and analysis presented in this volume provide a framework for further research on a number of issues that are central to a comprehensive evaluation of the Community Support Program and other planning efforts currently underway to enhance service delivery for the chronically mentally ill in various parts of the country. As Tessler and Goldman (1982) point out, such efforts are guided by a number of untested causal assumptions about the ways in which the development of interorganizational systems will improve service delivery and the quality of life for this target population. Here a number of ways are identified in which the concepts and methods employed in this study can contribute to an empirical assessment of these assumptions.

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To be maximally productive, future research must shift from the comparative study of a few cases to the longitudinal assessment of system development activities in a large number of localities. Multisite time series data would allow for a rigorous test of the Van de Ven and Ferry theoretical framework as well as the causal processes postulated to exist between system change, service improvement, and client-related outcomes in the CSP program logic. The techniques presented in this volume provide a way of obtaining baseline information or a snapshot view of CSS relationships at one time. Periodic resurveys of the networks in multiple sites would provide the data base for analyzing changes in the system of services over time. The format of data collection and analysis at each successive period would follow the schema used in the current study.

A number of key issues about system change and evaluation should be addressed in these longitudinal analyses. First, do the interorganizational relationships among CSS agencies move toward a well-coordinated system of services? Second, does increased coordination lead to improvements in system performance? And third, do changes in system performance enhance the quality of life for chronically mentally ill persons?

In system change analyses, interest shifts from the current state of relationships among CSS agencies to their configuration at one or more subsequent times. At issue is the extent to which relationships have changed to a more coordinated or integrated state and the nature of obstacles that continue to block the achievement of CSP goals.

In attempting to measure system change at the local level, much confusion and circular reasoning can be avoided by distinguishing between coordination as a set of administrative techniques or structure arrangements on the one hand, and coordination as a characteristic of services or their manner of delivery on the other (Redburn 1977). These distinct meanings of the term are labeled structural changes and system performance, respectively. By conceptualizing and measuring the two sets of phenomena separately, the possible causal connections between them can be investigated.

A variety of administrative mechanisms might be used to induce structural change, ranging from highly centralized (corporate) to highly decentralized (mutual adjustment) options. Similarly, the performance of the system can be indexed by a number of factors ranging from accessibility to fiscal viability. There is no necessary reason to expect that each type of structural change will have a uniform and positive impact on each system performance indicator. Nor is there reason to anticipate that maximizing one performance indicator will maximize the others. As Redburn (1977, p. 265) notes, for example, "... increasing access to services may overload the system – reducing efficiency or effectiveness." Viewed in this way, it then becomes possible to explore the causal relationships between the introduction of various structural changes and a change in the way the service system performs.

The logic underlying the CSP initiative assumes a pattern of covariation between system-performance criteria and these structural changes. By profiling the interorganizational dimensions of these structural changes, the resultant measures can be used as a set of independent or predictor variables to explain variations in

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performance outcomes or dependent variables. To the extent that CSPs in different communities use different combinations of these structural interventions, comparative multisite studies could address the issue of the relative impact of each combination on performance outcomes, such as accessibility, continuity, and cost efficiency. On the other hand, however, there are alternative models of structural change ranging from relatively informal and decentralized toward more centralized or corporate intervention strategies. To the extent that empirical cases of these varying strategies could be included in the assessment, research studies could then be designed to test the relative impact of alternative approaches on system performance.

Useful information about system change can also be obtained from assessments of CSP sites with different core service agencies. The initial round of CSP demonstration sites, for example, contained a range of core service agencies such as CMHCs, State mental hospitals, and nonprofit multiservice agencies. There is evidence to suggest that program auspices does make a difference in the way mental health services are delivered to clients (e.g., Brissenden and Lennard 1970). To the extent that comparative studies of CSPs demonstrate that one type of core service agency is associated with more optimal system performance, the data would provide insights into the behavior of interorganizational service-delivery systems and the ways in which these systems can be modified to meet the needs of chronically mentally ill persons.

Other system performance indices that should be monitored in system-change assessments include resource utilization and fiscal visibility. One of the intermediate system-change goals of CSP is to include a greater allocation of community mental health funds to the long-term care of the chronically mentally ill and to access mainstream funding from the larger health and social welfare systems. It would be useful in these regards to determine whether one type of CSP administrative model is more effective in realizing these goals. It may also be important to document the manner in which achieving one goal or one set of goals may hinder or even block the achievement of other goals. Another crucial factor to consider is the influence of State and Federal policies. The most significant determinants of resource adequacy and program viability at the local level may well reside at higher governmental levels. With the advent of block-grant funding for human services, the political process at the State level will undoubtedly shape what can and cannot be accomplished on the local community level.

The ultimate issues of CSP assessment concern the causal links between system performance and the quality of life of persons with chronic mental disabilities. Here the issue is the extent to which improvements in system performance actually translate into humane, dignified, and satisfying conditions of community living for chronically disabled clients.

The evaluation of these outcomes necessitates the integration of system, program, and client-level data. Studies that encompass each set of variables are relatively rare in the health and welfare field. At present, there is little solid evidence to demonstrate that organization-level independent variables predict client-level dependent variables. In one of the few efforts to demonstrate such a relationship, Ernest Gruenberg has argued that "organization makes the difference", at least in terms

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of clinical care of the chronically mentally ill (Gruenberg and Huxley 1970, p. 432). The extension and updating of this finding relative to the quality of life associated with CSP interventions clearly remains as a challenge for further research.

Great care must be exercised in defining and measuring quality-of-life indicators as ultimate success/failure criteria for CSP interventions. Richard Lamb (1981) has noted, for example, that expectations for chronically mentally ill persons expressed in such terms as helping them become part of the mainstream of our society or normalization are unrealistic save for a minority of this population. Much more appropriate goals for the majority of these people involve living lives of dignity with a reasonable amount of comfort in the community. To the extent that these latter goals are attained, Lamb and others would argue that CSP initiatives will have accomplished a tremendous amount.

These topics for further research illustrate the ways in which interorganizational analysis can be used to document and assess the goals of the CSP initiative as well as other models of mental health service delivery that might be mounted in the years ahead. Although the long-term viability of CSPs in an era of fiscal conservatism remains very much in doubt, it is certain that the humane care of chronically mentally ill persons will remain a societal responsibility for the foreseeable future. Whatever service configuration is ultimately selected as the preferred model, it surely will be interorganization in auspices and performance. To that extent, the concepts and methods presented in this volume concerning the structure and dynamics of interorganizational relationships will continue to be important tools for use in program monitoring and evaluation.

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APPENDIX 1
DATA COLLECTION INSTRUMENTS

The instruments used for data collection in both communities have a common origin in the work of Van de Ven and his colleagues and most particularly in the recent work by Van de Ven and Ferry (1980). In each community, data were collected by means of interviews with key informants (most often agency directors). From a master list of community agencies, respondents were asked to identify the five agencies that were most important to them, or with whom they interacted most frequently. They were then asked a series of questions about their relations with these agencies. The segments of the questionnaires encompassing the major theoretical concepts referenced in this report are reproduced below. It should be noted that there were slight differences in the wording of some of the questions in the two communities; when this occurred, both versions of the question are presented.

The respondents were provided with the following instructions for answering each question:

> In the columns on the right, please write the names of the agencies which you have previously mentioned. Then answer the following questions for each agency individually by writing in the appropriate column the most accurate number from the answer scale for each question.

SITUATIONAL FACTORS

	Agency 1 . . . . Agency N
1. RESOURCE DEPENDENCE	
In order to attain your goals, to what extent does your organization need the services, resources, or support from this organization?	___ . . . . ___

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

[1] These questions are drawn from Van de Ven's Organizational Assessment Instrument (OAI). The OAI is published in A. Van de Ven and D. Ferry, Measuring and Assessing Organizations, © 1980 by John Wiley & Sons, Inc. These questions are reprinted by permission of John Wiley & Sons, Inc.

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	Agency 1 . . . . Agency N
In order for this other agency to attain its goals, to what extent does <u>this agency need</u> the services, resources, or support from <u>your agency</u>?	___ . . . . ___

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

	Agency 1 . . . . Agency N
2. <u>AWARENESS</u>	
<u>Schenectady</u>:	
Are you personally acquainted with any staff in the other agency?	___ . . . . ___

No	Yes
0	1

If you are acquainted with other staff, for how long?	___ . . . . ___

Under 1 Year	1-3 Years	Over 3 Years
1	2	3

<u>Syracuse</u>:

How many years have you <u>personally known</u> the contact person in this agency?	___ . . . . ___

Don't Know	Not Informed	Little Informed	Somewhat Informed	Quite Informed	Very Well Informed
0	1	2	3	4	5

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3. CONSENSUS

Agency 1 . . . . Agency N

Schenectady:

How much do you and the staff of the following agencies agree on the most important needs of the adult mentally ill in Schenectady county? ___ . . . . ___

Syracuse:

How much do you and the contact person agree on:

What mental health services should be provided by their agency? ___ . . . . ___

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

4. DOMAIN SIMILARITY

Agency 1 . . . . Agency N

To what extent does this other agency:

Provide similar services to your agency? ___ . . . . ___

Provide services to the same clients or families as your agency does? ___ . . . . ___

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

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STRUCTURAL FACTORS

	Agency 1	. . . .	Agency N

1. NETWORK INTENSITY

Why was your organization involved with this agency during the past six months?

Schenectady:

To exchange information?	___	.	.	.	___
To refer clients?	___	.	.	.	___
To receive clients?	___	.	.	.	___
To provide funding?	___	.	.	.	___
To obtain funding?	___	.	.	.	___

No	Yes
0	1

Syracuse:

To exchange information?	___	.	.	.	___
To refer or receive clients?	___	.	.	.	___
To provide or obtain funding?	___	.	.	.	___

No	Yes
0	1

2. NETWORK COMPLEXITY

Network complexity was measured by utilizing the information obtained by the network intensity questions described above. How the information so obtained was used to operationalize network complexity is discussed in chapter 5.

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	Agency 1	. . . .	Agency N

3. FORMALIZATION

Has any form of agreement been established to define the relationship between your agency and this other agency? ___ . . . . ___

No	Yes
0	1

Schenectady:

If yes, to what extent is/was the agreement? ___ . . . . ___

Informal	Contractual
1	2

Is the agreement mandated by law? ___ . . . . ___

No	Yes
0	1

Syracuse:

If yes, indicate whether the agreement with this agency is:

Explicitly verbalized and discussed? ___ . . . . ___

Written down in detail? ___ . . . . ___

Legally binding or contractual? ___ . . . . ___

Mandatory by law (e.g., licensing requirement)? ___ . . . . ___

No	Yes
0	1

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4. CENTRALIZATION

	Agency 1 . . . . Agency N

Has any kind of interagency committee or group been established to coordinate activities between your agency and the other agency? ___ . . . . ___

No	Yes
0	1

If yes, to what extent are the decisions made by this committee binding upon your agency and this agency? ___ . . . . ___

To what extent is this committee formalized with agendas, minutes, etc.? ___ . . . . ___

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

PERCEIVED EFFECTIVENESS

1. RELATIONSHIP IS WORTHWHILE

	Agency 1 . . . . Agency N

To what extent is the time and effort spent in developing and maintaining the relationship with this other agency worthwhile? ___ . . . . ___

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

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2. SATISFACTION WITH RELATIONSHIP

Agency 1 . . . . Agency N

Overall, to what extent are you satisfied with the relationship between your organization and this agency?

____ . . . . ____

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

3. RELATIONSHIP IS PRODUCTIVE

Agency 1 . . . . Agency N

To what extent do you feel the relationship between your agency and this other agency is productive?

____ . . . . ____

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

4. COMMITMENTS ARE CARRIED OUT

Agency 1 . . . . Agency N

Syracuse:

To what extent does this other agency carry out the commitments it initially agreed to in regard to your agency?

____ . . . . ____

Don't Know	To no Extent	Little Extent	Some Extent	Much Extent	Very Much Extent
0	1	2	3	4	5

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COORDINATION AND SYSTEM DEVELOPMENT PROBLEMS

The following set of questions differ in format from the preceeding ones since the questions are directed toward the degree to which various problems exist in the community. Thus, the questions are not directed toward each other agency that the respondent had chosen, but to the community as a whole.

The respondents were presented with the following instructions for answering each question:

> Based upon your personal observations, to what extent do each of the following service delivery problems exist. (Circle the number on the scale which best expresses your opinion).

		Don't know	Not at all	Little	Some	Much	Very much
		0	1	2	3	4	5
1.	Lack of psychiatric and medical services?	0	1	2	3	4	5
2.	Lack of housing?	0	1	2	3	4	5
3.	Lack of psychosocial rehabilitation programs?	0	1	2	3	4	5
4.	Lack of coordination among agencies at the direct service delivery level?	0	1	2	3	4	5
5.	Competition among policy makers and agency heads?	0	1	2	3	4	5
6.	Inaccessible mental health services?	0	1	2	3	4	5
7.	Persons requiring multiple services "fall into cracks" between agencies?	0	1	2	3	4	5
8.	Less than adequate quality of mental health services provided by agencies in the county?	0	1	2	3	4	5

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		Don't know	Not at all	Little	Some	Much	Very much
		0	1	2	3	4	5
9.	Inadequate funding?	0	1	2	3	4	5
10.	Too rigid eligibility requirements?	0	1	2	3	4	5
11.	Lack of a formal planning process?	0	1	2	3	4	5
12.	Policies and guidelines from state agencies in Albany that discourage local interagency coordination of services to the chronically mentally ill?	0	1	2	3	4	5
13.	Absence of a unified public voice to advocate special interests and needs of the mentally ill in Onondaga County?	0	1	2	3	4	5

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APPENDIX 2

TECHNICAL DETAILS OF DATA ANALYSIS TECHNIQUES

This appendix provides a variety of technical details of the network analysis undertaken in the study. Included are a brief description of the required format for data input to the STRUCTURE network analysis program (PISA 1977; Burt 1977a; Burt 1977b), the manner in which role distances are used to identify clusters of structurally equivalent agencies, and a note on the computation of frequencies of relations in the blockmodeling technique (Breiger et al. 1975; White et al. 1976; Boorman and White 1976). In addition, a brief overview of the multidimensional scaling procedures used to derive the final mapping of system organization in each CSS network is also provided.

Data Input Format

STRUCTURE requires that the input data be arranged into a matrix. This matrix must be square, that is, the number of rows and columns must be identical. In Syracuse, for example, the matrix input to STRUCTURE had 69 rows and columns (one row and one column for each agency in the network), while in Schenectady the matrix had 45 rows and columns. A further requirement is that a separate matrix of this type be constructed for each type of relationship examined. Thus, for this study, a separate matrix was constructed for the information exchanges, client exchanges, and fund exchanges between agencies in each CSS network.

The entries in each of these three matrices represent the presence or absence of exchanges or linkages between pairs of agencies. The presence of a relationship of a particular type is coded 1, while the absence of such a relationship is coded 0. For example, if agency number 2 (say Catholic Charities in Syracuse), exchanges clients with agency number 61 (say Transitional Living Services in Syracuse), a 1 is entered in row 2 column 61 of the client exchange matrix. Thus, the entries in each row of the matrix represent each agency's set of relationships of a specific type with each of the other agencies in the network. These three matrices, then, were submitted to STRUCTURE so that the actual network analysis could be executed.

Role Distances and Structural Equivalence

Although STRUCTURE yields a variety of types of output, only two of these will be discussed here. The first is a set of role distances (Burt 1977a; Burt 1977b; Burt 1978a). By role distance Burt (1977a, p. 110) means

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> . . .the discrepancy between corresponding relations in role-sets. . .the role distance between the pattern of relations defining the status occupied by actor j and that defining the status occupied by actor i is a function of the differences in their corresponding relations to and from each actor in the system.

The STRUCTURE program takes the input data matrices and compares the pattern of relationships each agency has with other agencies. Those agencies that have relations with the same other agencies would have 0 role distance between them. That is, the role distance between Catholic Charities and Transitional Living Services in Syracuse would be 0 if both these agencies have relationships with exactly the same other agencies in the network. The role distance between the two would be greater than 0 if their pattern of relations was not exactly the same; indeed, the more dissimilar their pattern of relations, the greater the role distance between them.

In this fashion, each agency receives a role distance score relative to each of the other agencies in the community (in Syracuse, for example, each agency receives 68 role distance scores that represent its role distance from each of the other agencies in the community). These scores are part of the output generated by STRUCTURE. The program then uses the information contained in these role distances in a hierarchial cluster analysis to group agencies together. Agencies are grouped or clustered together when they have identical or very similar patterns of role relations with others. The groups, or clusters, of organizations in each community are groups in the sense that their incumbents have identical or similar patterns of relations to others in the network. Such clusters were the starting point for most of the analyses in this study and ultimately allowed mapping of the interorganizational network in each community.

It is important to note that the program allows the analyst to determine what constitutes a relation in order for the cluster analysis to take place. This parameter (termed NSTEP in the program) defines the largest linkage relation to be located between any pair of actors. Specifically, it is the power to which the input choice data are to be raised in order to locate the length of linkage relations among actors (PISA 1977). The higher the value of NSTEP, the less structurally equivalent the actors can be and still be clustered together. In this study, NSTEP was set to 3. This means that two actors, I and J, would be considered as linked together if I cites K, who cites L, who in turn cites J. That is, I can reach J in three steps. In this way, the cluster analyses took indirect relations into account in determining the composition of the structurally equivalent groups.

Using the role distances computed by the program, two actors, I and J, are structurally equivalent under a strong criterion when there is zero distance between them:

$$d_{ij} = 0,$$

and are structurally equivalent under a weak criterion when there is "negligible" distance between them:

$$d_{ij} > 0.$$

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(Burt 1976; Burt 1978a, p. 191-192). That is, actors can be more or less structurally equivalent and still be clustered together as a network subgroup. In this study, there were no agencies in either community that were structurally equivalent under a strong criterion (i.e., $d_{ij} = 0$); however, using a weak criterion of structural equivalence, the networks in both communities could be partitioned into clusters of structurally equivalent agencies.

The Blockmodeling Technique

The blockmodeling technique begins with the structurally equivalent groups identified by the cluster analysis and then computes the mean, or density, of relations not only between the occupants of each of the positions (the intercluster relations) but among the occupants of a particular position as well (the intracluster relations).

For the intercluster relations, the sum of the choices from the occupants of one position to the occupants of another position are then divided by the total number of possible choices that could have been made from the occupants of one position to the other. This yields the density of relations from one position to the other. Likewise, the density of intracluster relations can be computed by dividing the sum of relations between occupants by the total number of relations that could exist among them. This procedure yields an N by N table of densities, where N = the number of groups (in this case clusters) in the analysis. The densities range in magnitude from 0 to 1. A 0 indicates that no relations at all occur between cluster numbers. A 1 would indicate that all possible relations do, in fact, exist. The complete density matrix for Schenectady and Syracuse is presented in tables A-1 and A-2.

Typically, to ease interpretation, some cut-off density is established such that any number less than this amount is considered as a 0, or as the absence of any relationship, and any number greater than this is viewed as indicating the presence of a relationship. In this study the average density in each matrix was used as a cut-off. This follows typical procedures (Knoke and Kuklinski 1982, p. 74).

Multidimensional Scaling

The final analysis procedure employed in this study was multidimensional scaling. MDS is a set of mathematical techniques for arraying data points in a spatial configuration or map (Kruskal and Wish 1978). Once these data points are located in multidimensional spaces, the hidden structure or theoretical meaning of the spatial representation can be determined.

In the present application of MDS, the SOCK computer program developed by Alba and Gutmann (1972) was employed. This program is a general purpose sociometric clique identification package. The one feature used in this study was the nonmetric dimensional scaling subroutine based on Kruskal's MDS algorithm (Kruskal 1964). The source data for the MDS was the 0/1 image matrices derived from the blockmodels in Syracuse and Schenectady (see chapter 6). These matrices represent the densities between structurally equivalent groups in each CSS network.

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Table A-1. Density matrix for structurally equivalent clusters in Syracuse

Cluster choosing	Cluster chosen													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.500	.002	.025	0	.204	0	0	.002	0	.057	.014	.017	.340	.141
2	0	.644	.001	0	.419	0	0	.005	0	.051	.006	.095	.059	.322
3	0	.344	.446	.195	.017	0	0	.470	.034	.203	.001	.010	.010	.401
4	0	.073	0	.771	.083	.002	0	.341	.002	.151	.008	.011	.117	.115
5	0	0	0	0	.813	0	0	0	0	0	.016	.281	.317	.007
6	0	.003	0	.204	.106	.500	.397	.072	0	.024	.003	.238	.110	.097
7	0	0	0	0	.038	.023	.722	.001	0	.006	.047	.380	.217	.007
8	0	0	.027	.380	.012	.005	0	.787	.127	.238	.003	.035	.004	.284
9	0	0	.001	.046	.067	.003	0	.232	.419	.252	0	.010	.017	.124
10	0	0	0	.007	.008	.011	0	.712	0	.767	0	.010	.010	.367
11	0	0	0	.082	.009	.002	0	.039	0	.077	.380	.150	.080	.009
12	0	0	0	.006	.004	.001	.001	.030	0	.055	.248	.683	.442	.042
13	0	0	0	0	.018	.003	0	.002	0	.011	.014	.429	.794	.120
14	0	0	0	.042	.075	0	0	.246	.001	.446	.015	.409	.188	.805

Average table density = .111

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Table A-2. Density matrix for structurally equivalent clusters in Schenectady

Cluster choosing	Cluster chosen									
	1	2	3	4	5	6	7	8	9	10
1	.917	.138	.004	.339	.053	0	.174	.003	.076	.005	.029
2	.052	.769	.192	.503	.199	0	.010	.006	.023	.013	.006
3	.153	.067	.606	.442	.121	0	.032	.006	.050	.298	.014
4	.023	.007	.052	.777	.359	0	.085	.013	.156	.071	.020
5	.017	.007	.010	.172	.773	0	.135	.056	.464	.051	.008
6	.016	.003	.007	.096	.163	.500	.425	.052	.374	.012	.007
7	.002	.005	.005	.008	.123	0	.620	.080	.195	.165	.062
8	.009	.003	.004	.006	.009	0	.395	.814	.250	.055	.179
9	.003	.006	.054	.011	.298	0	.273	.298	.781	.014	.043
10	.046	.006	.159	.013	.301	0	.277	.005	.133	.779	.001
11	.317	.059	.003	.169	.011	0	.218	.120	.027	.003	.634

Average table density = .151

A three-dimensional solution was found to provide a tolerable fit to the proximities in each matrix. The STRESS coefficients were .191 (Schenectady) and .277 (Syracuse). While these coefficients indicate that the fit of the spatial configuration to the original proximities was far from exact, they nonetheless allowed the use of spatial configurations to map the relationships between structurally equivalent groups in each CSS network and to interpret their underlying composition.

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